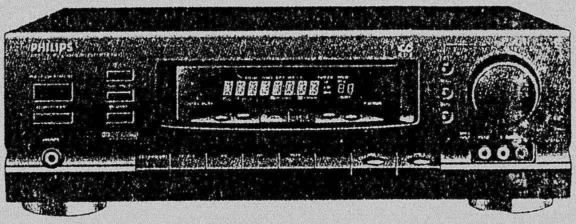
# Dolby Prologic AV Receiver FR732/00

Service
Service
Service



# Service Manual

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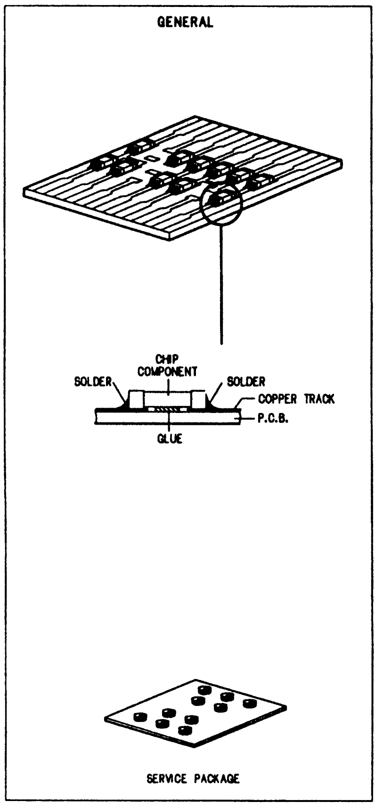
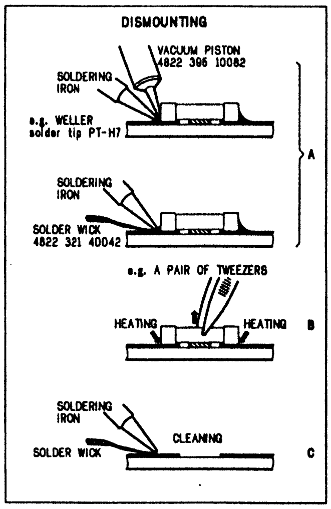
4822 725 25568

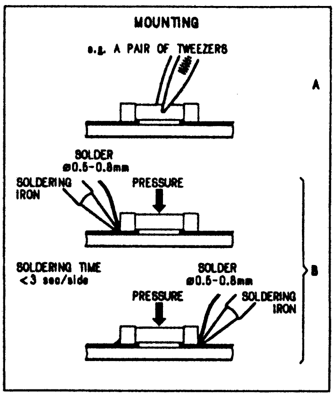
PHILIPS

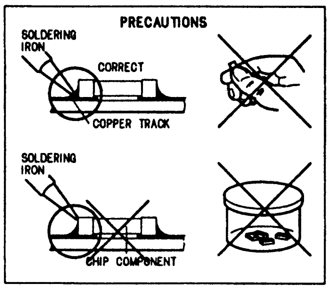
PCS 87 085

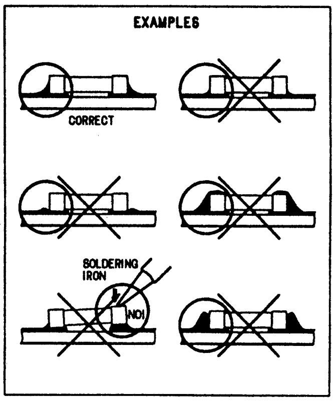
# HANDLING CHIP COMPONENTS


GENERAL
CHIP COMPONENT
SOLDER
SOLDER
COPPER TRACK
P.C.B.
GLUE
SERVICE PACKAGE


DISMOUNTING
VACUUM PISTON 4822 395 10082
SOLDERING IRON
e.g. WELLER solder tip PT-H7
A
SOLDERING IRON
SOLDER WICK 4822 321 40042
e.g. A PAIR OF TWEEZERS
HEATING
HEATING
B
SOLDERING IRON
CLEANING
SOLDER WICK
C


MOUNTING
e.g. A PAIR OF TWEEZERS
A
SOLDER ø0.5-0.8mm
SOLDERING IRON
PRESSURE
SOLDERING TIME <3 sec/side
SOLDER ø0.5-0.8mm
PRESSURE
SOLDERING IRON
B


PRECAUTIONS
SOLDERING IRON
CORRECT
COPPER TRACK
SOLDERING IRON
CHIP COMPONENT


EXAMPLES
CORRECT
SOLDERING IRON
NO!

### (GB) WARNING

All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools at this potential.

### (F) ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD). Leur longévite pourrait être considérablement écourtée par le fait qu'aucune précaution nést prise à leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfileer le bracelet serti d'une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

| | |
|---|---|
| Anti-static table matlarge1200x650x1.25mm | 4822 466 10953 |
| small 600x650x1.25mm | 4822 466 10958 |
| Anti-static wrist band | 4822 395 10223 |
| Connection box (1MOhm) | 4822 320 11307 |
| Extendible cable (to connect wrist band to conn. box) | 4822 320 11305 |
| Connecting cable (to connect table mat to conn. box) | 4822 320 11306 |
| Earth cable (to connect any product to mat or box) | 4822 320 11308 |
| Complete kit ESD3 (combining all above products) | 4822 310 10671 |
| Wristband tester | 4822 344 13999 |

(GB)
After servicing and before returning the set to customer perform a leakage current measurement test from all exposed metal parts to earth ground, to assure no shock hazard exists.
The leakage current must not exceed 0.5mA.

(F)
"Pour votre sécurite, ces documents doivent être utilisés par des spécialistes agrées, seuls habilités à réparer votre appareil en panne".

**ESD**

### (D) WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).
Unsorgfältige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren.
Sorgen Sie dafür, dab sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind.
Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

(GB)
Safety regulations require that the set be restored to its originial condition and that parts which are identical with those specified be used.
Safety components are marked by those symbol. ▲

### (S) Varning !

Osynlig laserstrålning när apparaten är öppnad och spärren är urkopplad. Betrakta ej strålen.

### (DK) Advarsel !

Usynlig laserstråling ved åbning når sikkerhedsafbrvdere er ude af funktion. Undgå udsaettelse for stråling.

### (SF) Varoitus !

Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkymättömälle laserisäteilylle. Älä katso säteeseen!

### (NL) WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen. Zorg ervoor dat u tijdens reparatie via een polsband met wererstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

### (I) AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statische (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione. Durante le riparationi occorre quindi essere collegato allo stesso potenziale che quello della massa delápparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

### (GB) WARNING

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

### (F) ATTENTION

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

### (D) WARNUNG

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Gerätes darf nicht verändert werden. Für Reparaturen sind Original-ersatzteile zu verwenden.

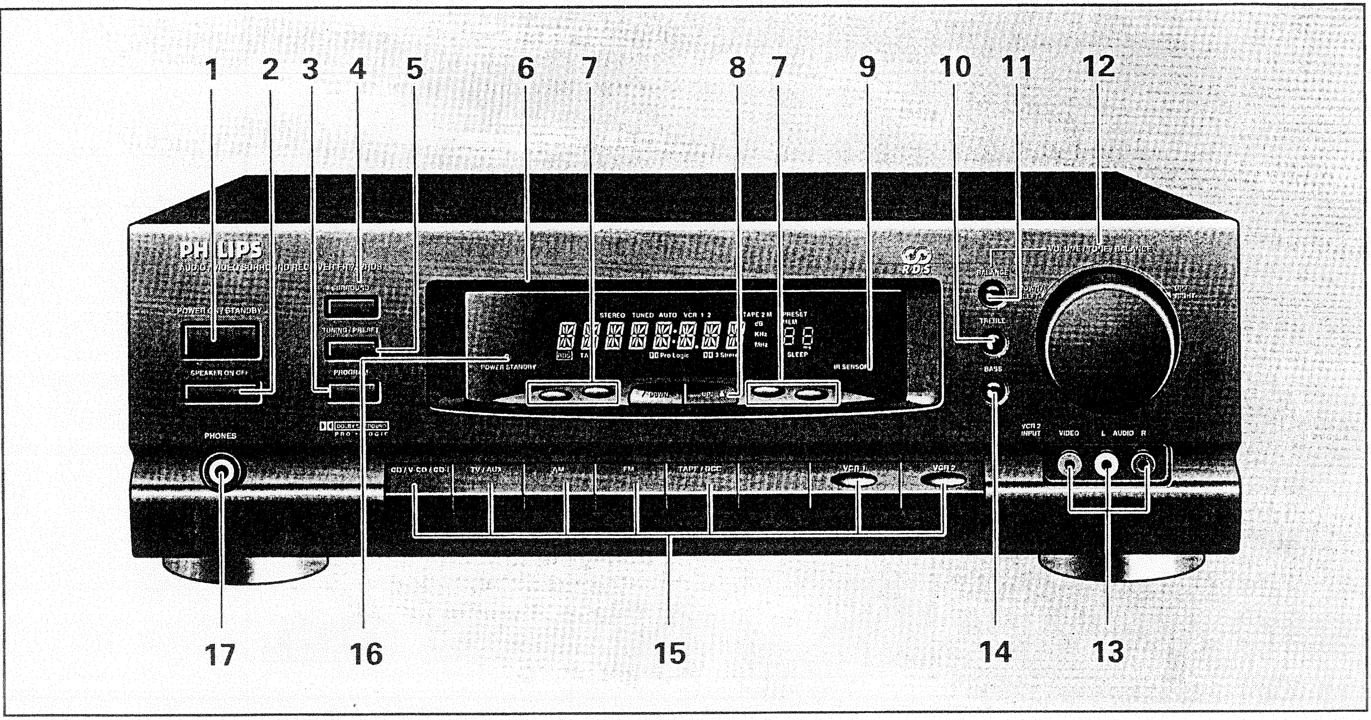
### (NL) WAARSCHUWING

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

### (I) AVVERTIMENTO

Le norme di sicurezza estigono che l'apparecchio venga rimesso nelle condizioni orginali e che siano utilizzati i pezzi di ricambiago identici a quelli specificati.

# CONTROLS - FRONT



## FRONT

### 1 POWER ON/STANDBY
For switching on to last mode and for switching off.

### 2 SPEAKERS ON/OFF
For switching the speakers connected to the FRONT SPEAKERS terminals on and off.

### 3 PROGRAM
For storing preset stations.

### 4 SURROUND
For selecting the surround modes:
**DOLBY PRO LOGIC, DOLBY 3 STEREO, OFF.**
Dolby Surround manufactured under license from Dolby Laboratories Licensing Corporation. 'Dolby' and the double D symbol ▯▯ are trademarks of Dolby Laboratories Licensing Corporation.

### 5 TUNING/PRESET
For selecting the frequency or channel mode.

### 6 DISPLAY
Informs you about the functioning of the receiver.

### 7 RDS MODE CONTROLS (for FM only)
**DISPLAY button:** For changing the display mode
**RDS button:** To turn the RDS mode ON or OFF
**AF button:** To tune automatically to the frequency with the strongest signal for optimum reception of a RDS station
**PTY button:** To select the RDS station broadcasting the desired programme type (PTY)

### 8 UP/DOWN
- For adjusting the station frequency.
- For selecting the next or previous tuner preset.

### 9 I(nfra) R(ed) SENSOR
Infrared remote control eye for receiving signals from the remote control.

### 10 TREBLE
For adjusting the high tones (use together with the VOLUME/TONE/BALANCE control **12**).

### 11 BALANCE
For adjusting the balance of the volume between the left and right channels (use together with the VOLUME/TONE/BALANCE control **12**).

### 12 VOLUME/TONE/BALANCE
- **VOLUME** – For adjusting the volume.
- **TONE** – For adjusting the high tones and the bass tones (use together with the TREBLE **10** and BASS **14** controls).
- **BALANCE** – For adjusting the balance of the volume between the left and right channels (use together with BALANCE button **11**).

### 13 VCR 2 AUDIO/VIDEO INPUT
Connections for an extra VCR or camcorder (VIDEO) or an extra audio source (AUDIO).

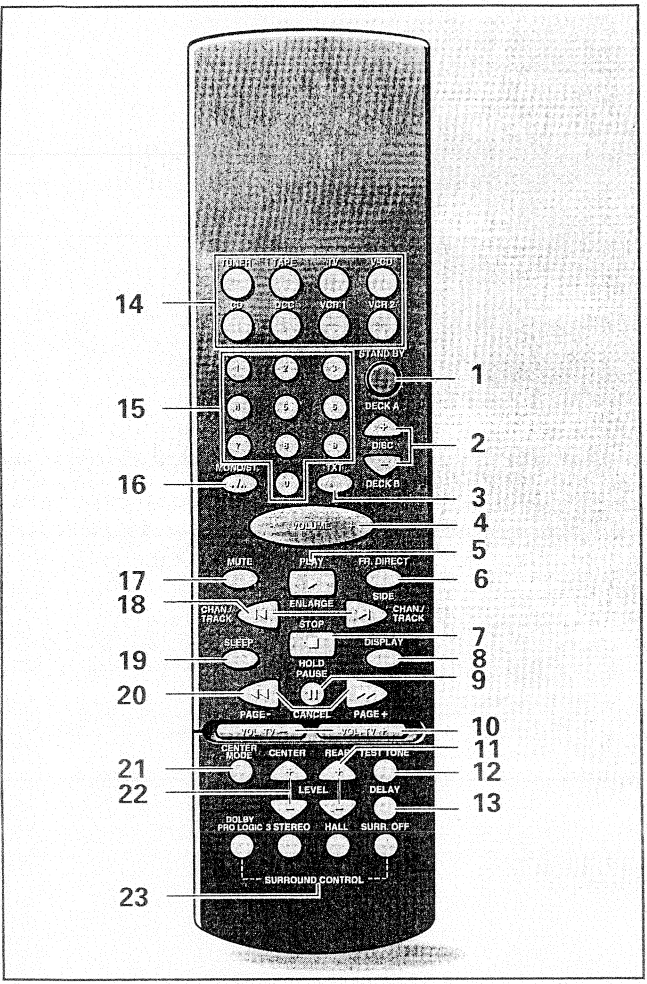
### 14 BASS
For adjusting the bass tones (use together with the VOLUME/TONE/BALANCE control **12**).

### 15 SOURCE SELECTION KEYS
For selecting the required audio or video source.

### 16 POWER STANDBY LED
- Lights up when in stand by mode
- Flashes when MUTE is active

### 17 PHONES
For connecting headphones.

# CONTROLS - REMOTE CONTROL



## AMPLIFIER

1 **STANDBY** – for switching to standby.
4 **VOLUME+VOLUME–** – for adjusting the volume
14 **Source selectors**
17 **MUTE** – for muting the volume.
19 **SLEEP** – for setting a time period after which the system will automatically be switched to standby

**Surround processor**
11 **REAR LEVEL +/–** – for adjusting the rear level (only in Dolby Pro Logic mode)
12 **TEST TONE** – for checking the output level of the front, centre and rear speakers
13 **DELAY** – for adjusting the delay time of the rear channel *(has no influence on the FR 732 for the delay time is fixed).*
21 **CENTER MODE** – for selecting the desired centre mode when in Dolby Pro Logic or Dolby 3 Stereo mode
22 **CENTER LEVEL +/–** – for adjusting the centre level (only in normal mode or wide mode)
23 **SURROUND CONTROL**
– **DD PRO LOGIC, 3 STEREO** – for selecting the different surround modes *(the HALL button has no influence on the FR 732).*
– **SURR**(ound) **OFF** – for switching the surround mode off

## TUNER

1 **STANDBY** – for switching to standby
6 **FR**(equency) **DIRECT** – for direct tuning to the station frequency
8 **DISPLAY:**
– Indicates the frequency, the signal level, the Programme Service name, the Program Type and the clock time in RDS mode.
– indicates the frequency, the signal level in FM non-RDS mode
15 **0-9 digit keys** – for selecting preset stations and frequency direct mode
16 **MONO/ST** – for mono/stereo selection
18 **CHANNEL/TRACK** – next ▶| or previous |◀ preset station
20 **◀◀ ▶▶** – for tuning up and down

## TAPE

1 **STANDBY** – for switching to standby
2 **DECK A/DECK B** – for selecting deck A or B
5 **PLAY ▶** – for starting play
6 **SIDE** – for selecting tape side A or B
7 **STOP ■** – for stopping recording/play
9 **PAUSE II** – for interrupting recording/play
18 **CHANNEL/TRACK** – next ▶| or previous |◀ track
20 **◀◀ ▶▶** – for winding the tape

## VCR 1 and VCR 2

1 **STANDBY** – for switching to standby
5 **PLAY ▶** – for starting play
7 **STOP ■** – for stopping recording/play
9 **PAUSE II** – for interrupting recording/play
15 **0-9 digit keys** – for selecting stations
18 **CHANNEL/TRACK** – next ▶| or previous |◀ station
20 **◀◀ ▶▶** – for winding the tape

## C D and V-CD/CD-i

1 **STANDBY** – for switching to standby
2 **DISC + –** (CD changer only) – for disc selection
5 **PLAY ▶** – for starting play
7 **STOP ■** – for stopping recording/play/clearing a programme
8 **DISPLAY** – for displaying the elapsed playing time and the remaining playing time during playback of a (V-) CD.
9 **PAUSE II** – for interrupting recording/play
15 **0-9 digit keys** – for track selection
18 **CHANNEL/TRACK** – next ▶| or previous |◀ track
20 **◀◀ ▶▶** – for searching up and down

## TV

1 **STANDBY** – for switching to standby
3 **TXT** – for switching teletext on and off
5 **PLAY ▶** – enlarge picture
7 **STOP ■** – hold picture
8 **DISPLAY** – for selecting on screen display
9 **CANCEL** – cancel teletext
10 **VOLUME TV** – for adjusting the volume
15 **0-9 digit keys** – for selecting preset stations
16 **–/– –** – 1 or 2 digit entry
18 **CHANNEL/TRACK** – next ▶| or previous |◀ channel
20 **PAGE + /PAGE –** – next or previous teletext page

## DCC

1 **STANDBY** – for switching to standby
2 **DECK A/DECK B** – for selecting deck A or B
5 **PLAY ▶** – for starting play
6 **SIDE** – for selecting the tape travel direction
7 **STOP ■** – for stopping recording/play
8 **DISPLAY** – for displaying character information (e.g. title names etc.)
9 **PAUSE II** – for interrupting recording/play
15 **0-9 digit keys** – for track selection
18 **CHANNEL/TRACK** – next ▶| or previous |◀ track
20 **◀◀ ▶▶** – for winding the tape

## INSTALLATION

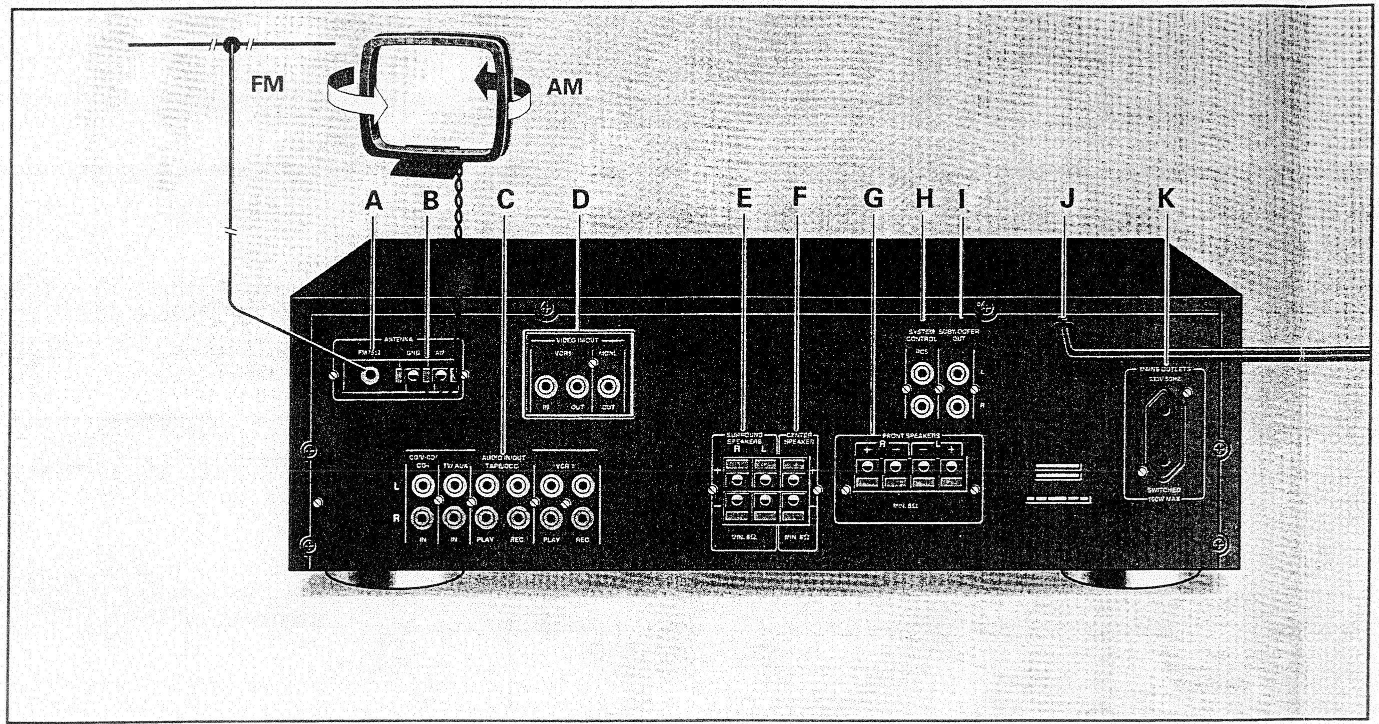
You only have to install your system once.
Please make the following connections (whenever applicable).

***NOTES!***

- **SWITCH OFF THE RECEIVER BEFORE MAKING ANY CONNECTIONS.**
- Do not connect the set to the mains when making connections.
- Be sure to connect the white plugs to the L (left) and the red plugs to the R (right) sockets when making connections.

***Important note for connecting equipment that does not have PLAY/REC markings on the input and output sockets:***

| FR732 | Device to be connected e.g. cassette deck. |
|---|---|
| PLAY → | PLAY or OUT |
| REC → | REC or IN |



### CONNECTIONS

**A FM (75 Ω)**
The FM (75 Ω) socket is used for connection to the Community or Cable Antenna System or to a roof-mounted FM antenna with an impedance of 75 ohms. If none of these are available, you may use the wire supplied for nearby stations (reception could be poor).

**B GND/AM**
For AM reception, connect the supplied wires to the GND and AM antenna terminals (one wire to GND and one wire to the AM terminal) and position the antenna for best reception.
***Note***: Do ***not*** place the AM loop antenna on the unit, as this unit employs a computing device which could cause interference.

**C AUDIO IN/OUT**

- **CD/V-CD/CD-i IN** – input sockets for connecting a CD (Compact Disc) player or a V-CD/CD-i player.
  - Connect these sockets to the OUTPUT sockets of the (V) CD player.
- **TV/AUX IN** – input sockets for connecting the sound channel of a TV set or any other source you want to hear; an additional CD player, a cassette deck, a VCR or a turntable with ceramic cartridge etc.
- **TAPE/DCC PLAY/REC** – input and output sockets for connecting a cassette deck.
  - Connect the PLAY sockets to the LINE OUTPUT sockets of the cassette deck.
  - Connect the REC sockets to the LINE INPUT sockets of the cassette deck.
- **VCR 1 PLAY/REC** – input sockets for connecting the sound channel of a video recorder and output sockets for extra sound recording equipment (e.g. a HiFi stereo video recorder, or cassette, or tape deck).
  - Connect the PLAY sockets to the OUTPUT sockets of the VCR.
  - Connect the REC sockets to the INPUT sockets of the VCR.

**D VIDEO IN/OUT**

- **VCR 1 IN/OUT** – input and output sockets for connecting the video input and output of a video recorder
- **MONI/OUT** – output sockets for connecting to the video input of a video TV set.

**E SURROUND SPEAKERS**
Terminals for connecting a pair of surround speakers, impedance of 8 Ω each, to obtain a surround sound effect.
***NOTE:*** Always connect ***two*** speakers to these terminals.

**F CENTRE SPEAKER**
Terminals for connecting a centre speaker.

**G FRONT SPEAKERS A/B**
Terminals for connecting two pairs of speakers, impedance 6-16 ohms (L = left, R = right).

- One of the wires of the loudspeaker cables is marked with a colour or rib. Connect the marked wire to the red terminal, the non-marked wire to the black one.

**H SYSTEM CONTROL**
**RC-5** (coloured orange) – remote-control input/output socket for connection to the corresponding RC-5 socket of a CD (Compact Disc) player or a remote control receiver etc..
Connect the RC-5 socket to the RC-5 socket of the external equipment that uses the RC-5 remote control system.
This socket has been added to maintain compatibility with other Philips Audio equipment.

### POWER

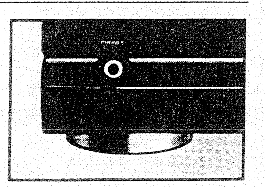
**I SUBWOOFER OUT**
For use with an externally powered subwoofer (not supplied)
For details, please refer to the subwoofer's owners manual.

**J MAINS LEAD**
For connecting the set to the mains.

**K MAINS OUTLETS**
Switched mains output for connecting mains plugs from various units such as cassette deck, CD player, etc. (maximum capacity is 100 W).
Power supplied through this outlet is turned on and off by the POWER button of the receiver and STANDBY button on the remote control.

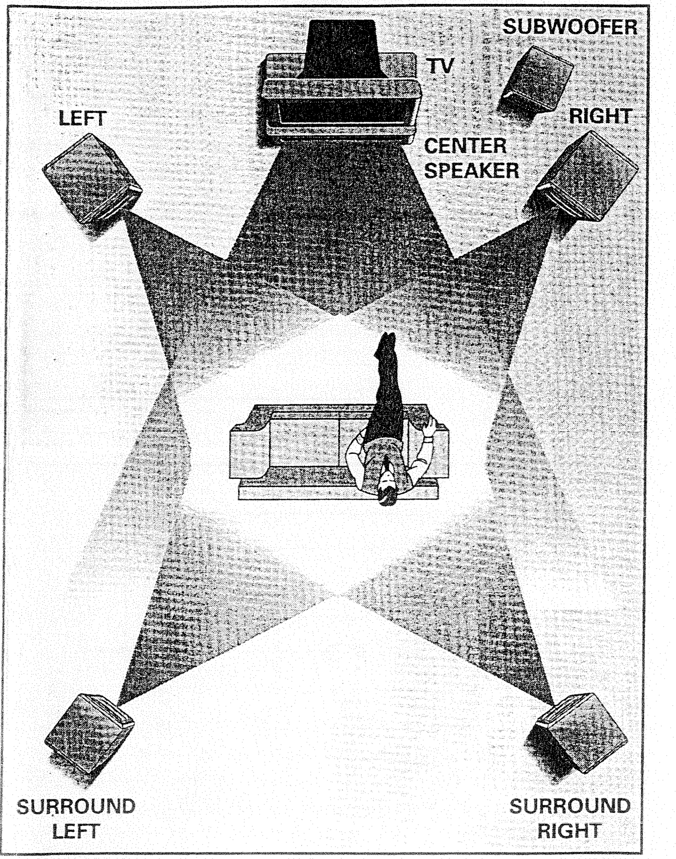
### CONNECTING HEADPHONES

- Connect headphones with a 6,3 mm plug to the PHONES socket.
- Inserting the plug will not disconnect the loudspeakers.



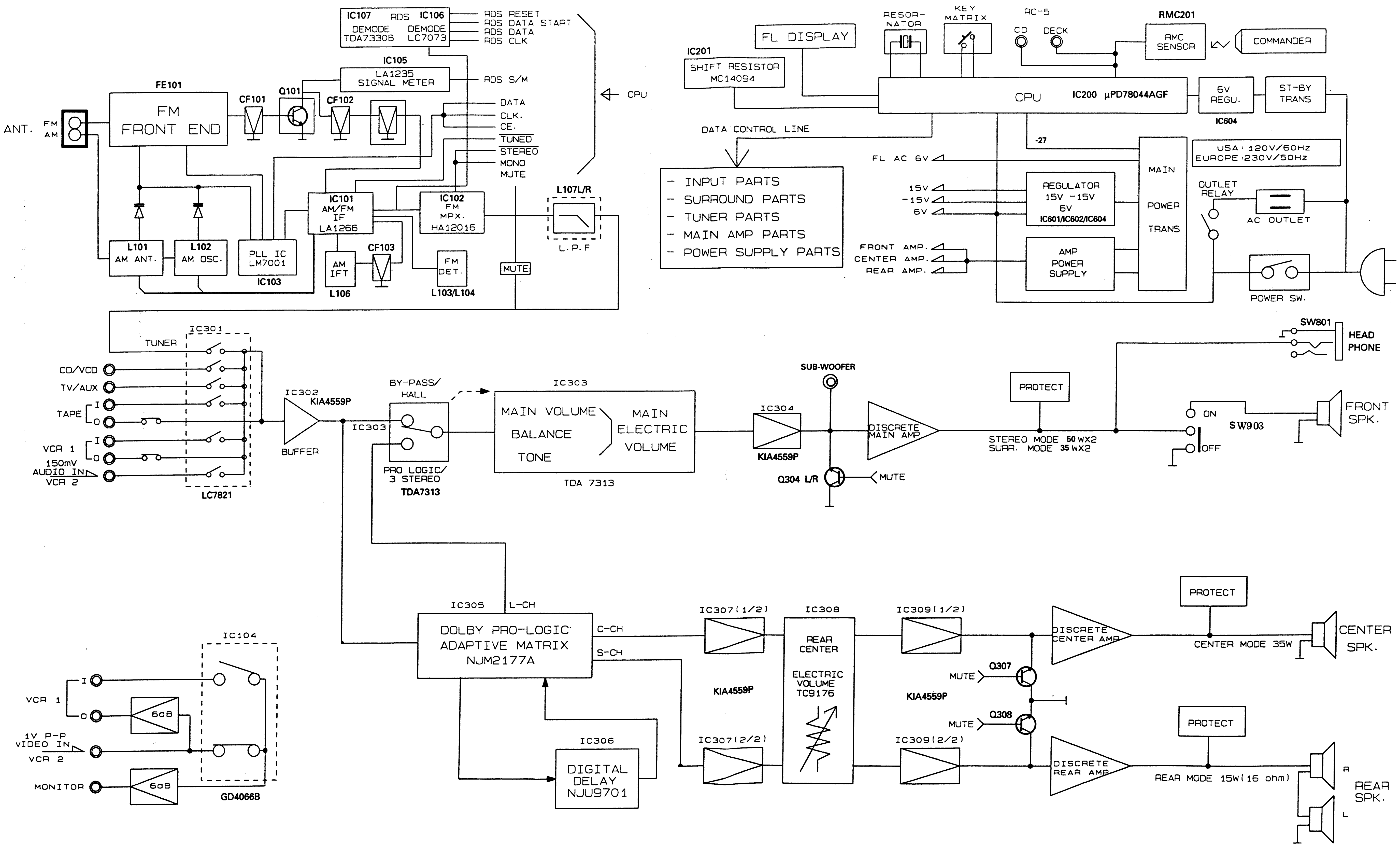
### SPEAKER POSITIONING

To get the best surround sound effect in your home, place the speakers as shown below.
The left and right speakers should be about 1 m. (40") from the TV set.
The centre speaker should be above or below the TV set.
The rear speakers should be placed at normal listening ear level.
***Note:*** to avoid interference with the TV picture, use only magnetically shielded speaker systems.

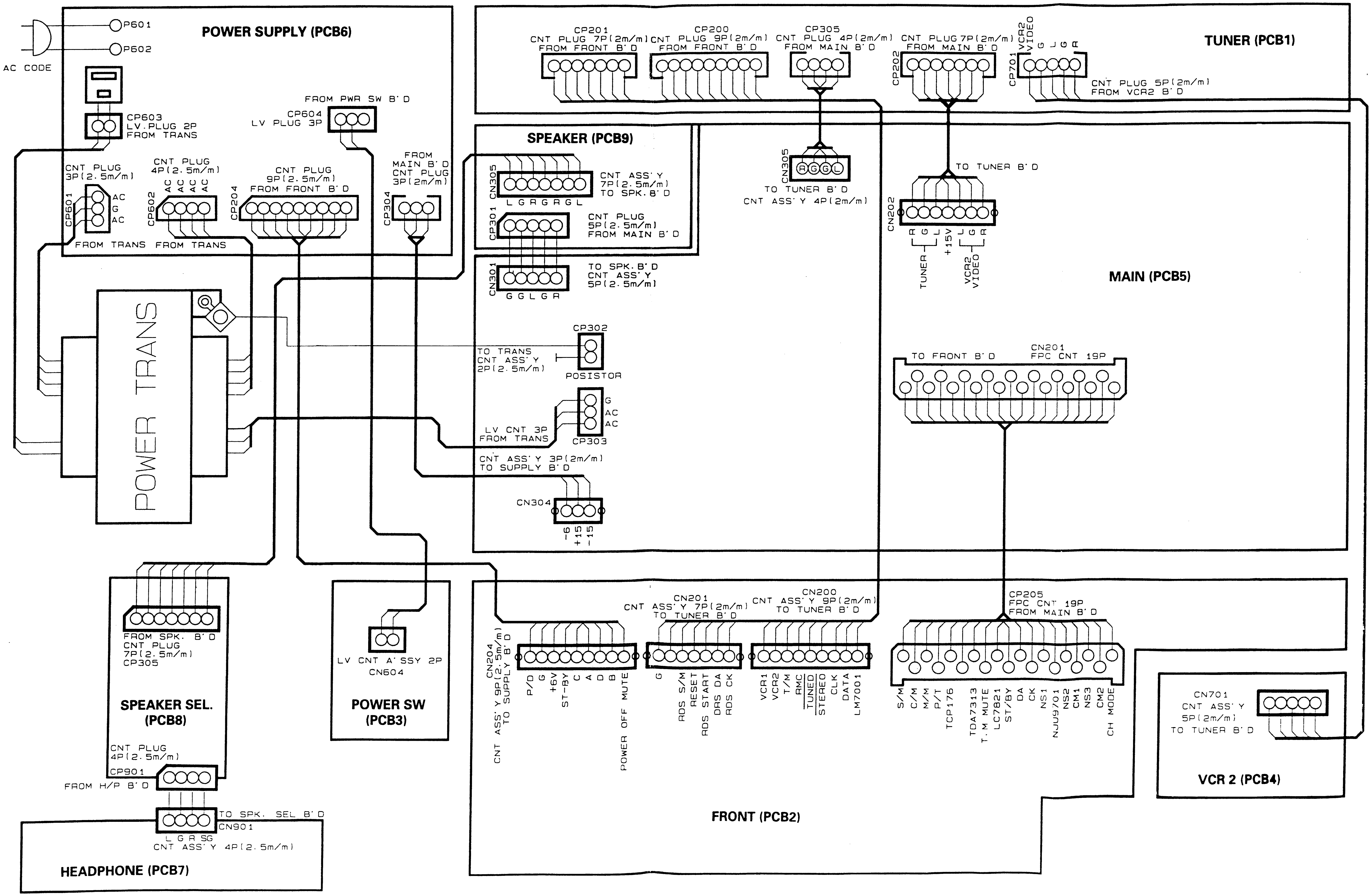


After making all necessary connections (some may not be applicable for your system set-up), your system is ready for use. In the next chapter we will describe how to operate your FR 732 receiver.

## BLOCK DIAGRAM


IC107 RDS IC106
DEMODE DEMODE
TDA7330B LC7073
RDS RESET
RDS DATA START
RDS DATA
RDS CLK
IC105
LA1235
SIGNAL METER
RDS S/M
CPU
FE101
FM FRONT END
CF101
Q101
CF102
DATA
CLK.
CE.
TUNED
STEREO
MONO
MUTE
ANT.
FM
AM
IC101
AM/FM
IF
LA1266
IC102
FM
MPX.
HA12016
L107L/R
L.P.F
L101
AM ANT.
L102
AM OSC.
PLL IC
LM7001
IC103
AM
IFT
L106
CF103
FM
DET.
L103/L104
MUTE
IC201
SHIFT RESISTOR
MC14094
FL DISPLAY
RESOR-
NATOR
KEY
MATRIX
RC-5
CD
DECK
RMC201
RMC
SENSOR
COMMANDER
CPU
IC200 µPD78044AGF
6V
REGU.
IC604
ST-BY
TRANS
DATA CONTROL LINE
- INPUT PARTS
- SURROUND PARTS
- TUNER PARTS
- MAIN AMP PARTS
- POWER SUPPLY PARTS
-27
FL AC 6V
15V
-15V
6V
REGULATOR
15V -15V
6V
IC601/IC602/IC604
MAIN
POWER
TRANS
USA : 120V/60Hz
EUROPE :230V/50Hz
OUTLET
RELAY
AC OUTLET
FRONT AMP.
CENTER AMP.
REAR AMP.
AMP
POWER
SUPPLY
POWER SW.
SW801
HEAD
PHONE
IC301
TUNER
CD/VCD
TV/AUX
TAPE
I
O
VCR 1
I
O
150mV
AUDIO IN
VCR 2
LC7821
IC302
KIA4559P
BUFFER
BY-PASS/
HALL
IC303
PRO LOGIC/
3 STEREO
TDA7313
IC303
MAIN VOLUME
BALANCE
TONE
MAIN
ELECTRIC
VOLUME
TDA 7313
SUB-WOOFER
IC304
KIA4559P
Q304 L/R
MUTE
DISCRETE
MAIN AMP
PROTECT
STEREO MODE 50 WX2
SURR. MODE 35 WX2
ON
OFF
SW903
FRONT
SPK.
IC305
L-CH
DOLBY PRO-LOGIC
ADAPTIVE MATRIX
NJM2177A
C-CH
S-CH
IC306
DIGITAL
DELAY
NJU9701
IC307(1/2)
IC307(2/2)
KIA4559P
IC308
REAR
CENTER
ELECTRIC
VOLUME
TC9176
IC309(1/2)
IC309(2/2)
KIA4559P
Q307
MUTE
Q308
MUTE
DISCRETE
CENTER AMP
DISCRETE
REAR AMP
PROTECT
CENTER MODE 35W
CENTER
SPK.
PROTECT
REAR MODE 15W(16 ohm)
R
L
REAR
SPK.
IC104
VCR 1
I
O
6dB
1V P-P
VIDEO IN
VCR 2
MONITOR
6dB
GD4066B

## WIRING DIAGRAM



P601
P602
AC CODE
POWER SUPPLY (PCB6)
CP603
LV.PLUG 2P
FROM TRANS
FROM PWR SW B'D
CP604
LV PLUG 3P
CNT PLUG
3P(2.5m/m)
CP601
AC
G
AC
CNT PLUG
4P(2.5m/m)
CP602
AC AC AC AC
CP204
CNT PLUG
9P(2.5m/m)
FROM FRONT B'D
FROM
MAIN B'D
CNT PLUG
3P(2m/m)
CP304
FROM TRANS
FROM TRANS
POWER TRANS
TUNER (PCB1)
CP201
CNT PLUG 7P(2m/m)
FROM FRONT B'D
CP200
CNT PLUG 9P(2m/m)
FROM FRONT B'D
CP305
CNT PLUG 4P(2m/m)
FROM MAIN B'D
CP202
CNT PLUG 7P(2m/m)
FROM MAIN B'D
CP701
VCR2 VIDEO
G L G R
CNT PLUG 5P(2m/m)
FROM VCR2 B'D
SPEAKER (PCB9)
CN305
L G R G R G L
CNT ASS'Y
7P(2.5m/m)
TO SPK.B'D
CP301
CNT PLUG
5P(2.5m/m)
FROM MAIN B'D
CN301
G G L G R
TO SPK.B'D
CNT ASS'Y
5P(2.5m/m)
CN305
R G G L
TO TUNER B'D
CNT ASS'Y 4P(2m/m)
TO TUNER B'D
CN202
R G L +15V L G R
TUNER
VCR2 VIDEO
MAIN (PCB5)
CP302
TO TRANS
CNT ASS'Y
2P(2.5m/m)
POSISTOR
G
AC
AC
LV CNT 3P
FROM TRANS
CP303
CNT ASS'Y 3P(2m/m)
TO SUPPLY B'D
CN304
-6 +15 -15
CN201
TO FRONT B'D
FPC CNT 19P
FROM SPK. B'D
CNT PLUG
7P(2.5m/m)
CP305
SPEAKER SEL.
(PCB8)
CNT PLUG
4P(2.5m/m)
CP901
FROM H/P B'D
TO SPK. SEL B'D
CN901
L G R SG
CNT ASS'Y 4P(2.5m/m)
HEADPHONE (PCB7)
LV CNT A'SSY 2P
CN604
POWER SW
(PCB3)
CN201
CNT ASS'Y 7P(2m/m)
TO TUNER B'D
CN200
CNT ASS'Y 9P(2m/m)
TO TUNER B'D
CP205
FPC CNT 19P
FROM MAIN B'D
CN204
CNT ASS'Y 9P(2.5m/m)
TO SUPPLY B'D
P/D
G
+6V
ST-BY
C
A
D
B
POWER OFF MUTE
G
RDS S/M
RESET
RDS START
DRS DA
RDS CK
VCR1
VCR2
T/M
RMC
TUNED
STEREO
CLK
DATA
LM7001
S/M
C/M
M/M
P/T
TCP176
TDA7313
T.M MUTE
LC7821
ST/BY
DA
CK
NS1
NJU9701
NS2
CM1
NS3
CM2
CH MODE
FRONT (PCB2)
CN701
CNT ASS'Y
5P(2m/m)
TO TUNER B'D
VCR 2 (PCB4)

# SPECIFICATIONS

## GENERAL

| | | |
|---|---|---|
| Main voltage | : | 230V |
| Main frequency | : | 50Hz |
| Battery (remote control) | : | 3V (R03G x 6) |
| Power Consumption | : | 110W |
| Dimension (W x H x D) | : | 435 x 125 x 350 mm |
| Weight | : | 8.6 kg |

## AMPLIFIER

| | | | |
|---|---|---|---|
| RMS Output power | Main | : | 2 x 50 W |
| | Center | : | 35 W |
| | Rear | : | 2 x 15W |
| Speaker impedance | Main | : | 2 x 8 Ohm |
| | Center | : | 8 Ohm |
| | Rear | : | 2 x 16 Ohm |
| Frequency response | Main | : | 20 Hz - 40 KHz |
| | Center (PRO-LOGIC) | : | 50 Hz - 15 KHz |
| | Rear (PRO-LOGIC) | : | 100 HZ - 6 KHz |
| Tone control | Bass at 100Hz | : | 12 dB |
| | Treble at 10KHz | : | 12 dB |
| Channel seperation | 1KHz | : | 35 dB |
| CD/TAPE sensitivity | | : | 200mV |

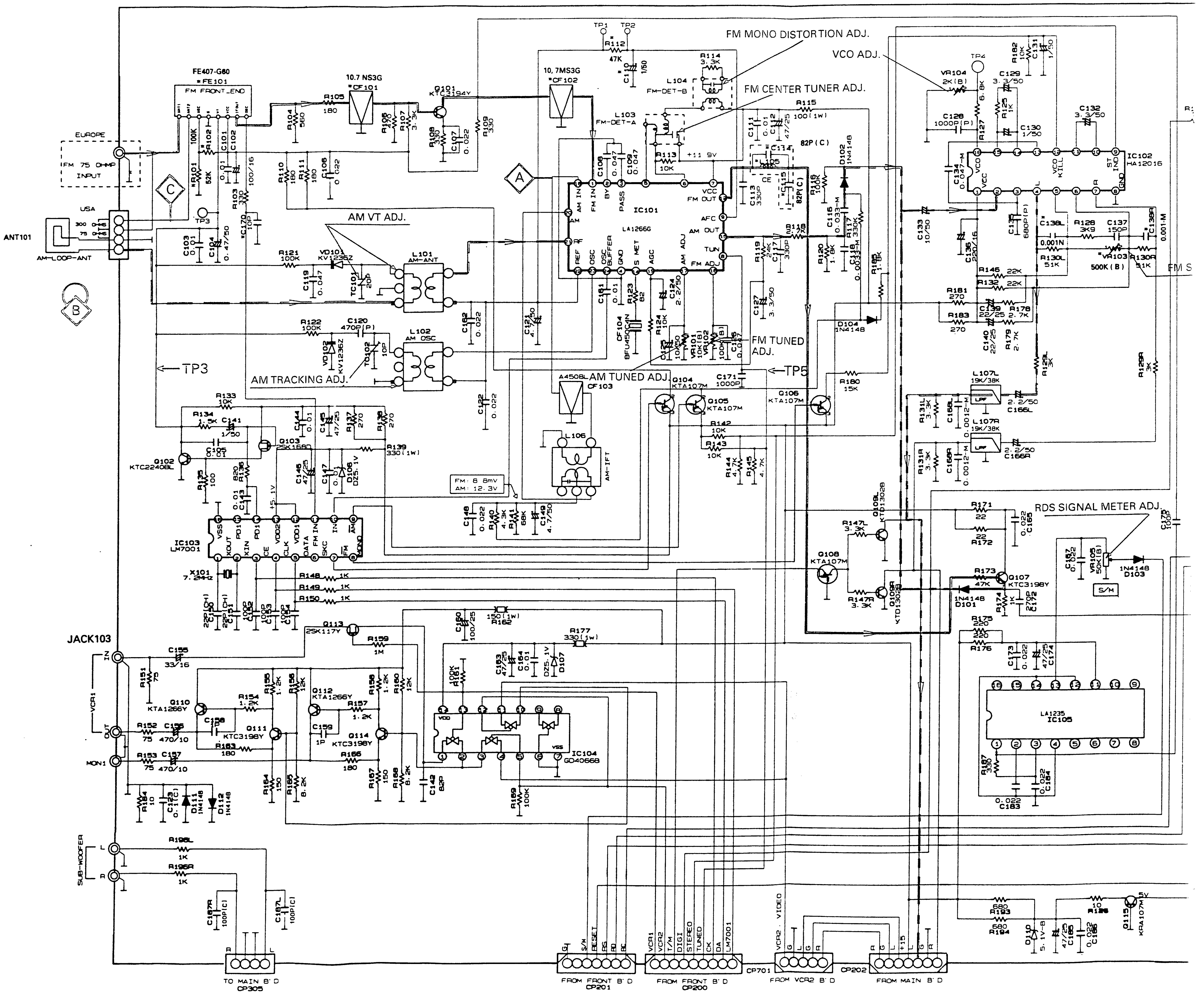
## TUNER - FM section

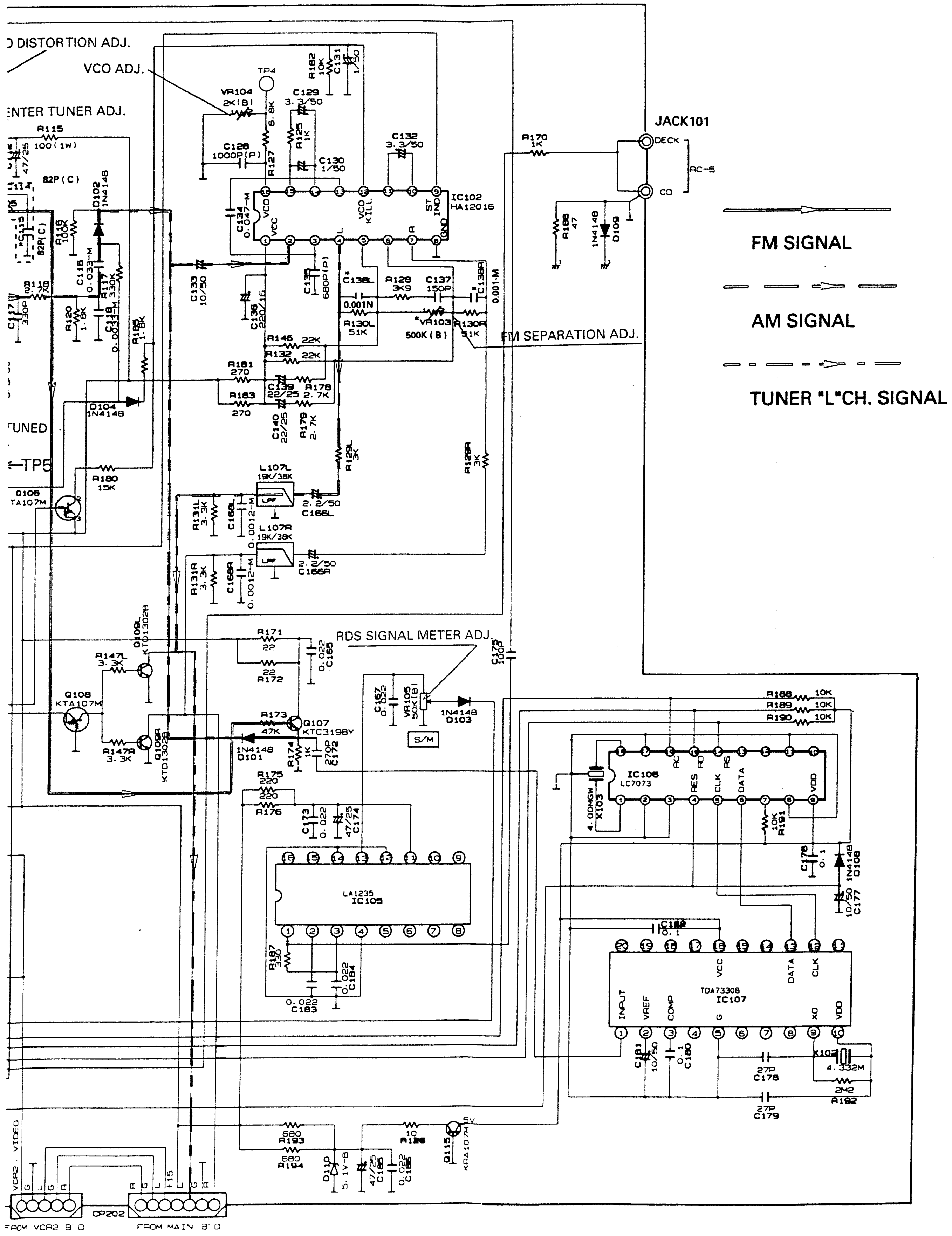
| | | |
|---|---|---|
| Tuning range | : | 87.5 -108MHz |
| IF frequency | : | 10.7MHz |
| Sensitivity | : | < 20 dBf at 26 dB S/N |
| Selectivity | : | > 40 dB at 600 Khz B.W. |
| IF rejection | : | > 70 dB |
| Image rejection | : | > 70 dB |
| Auto search stop sensitivity | : | > 34 dBf |
| Srereo seperation 1 KHz | : | > 28 dB |

## TUNER - AM section

| | | |
|---|---|---|
| Tuning range | : | 522 - 1611KHz |
| IF frequency | : | 450 KHz |
| Sensitivity | : | < 1000 µV/m at 20dB S/N |
| Selectivity | : | > 20 dB |
| IF rejection | : | > 30 dB |
| Image rejection | : | > 28 dB |
| Auto search stop sensitivity | : | < 1585 µV/m |

# TUNING BOARD - CIRCUIT DIAGRAM


FM MONO DISTORTION ADJ.
VCO ADJ.
FM CENTER TUNER ADJ.
AM VT ADJ.
AM TRACKING ADJ.
AM TUNED ADJ.
FM TUNED ADJ.
RDS SIGNAL METER ADJ.
TP1
TP2
TP3
TP4
TP5
FE407-G60
FE101
FM FRONT END
10.7 NS3G
CF101
10.7MS3G
CF102
EUROPE
FM 75 OHM INPUT
USA
ANT101
AM-LOOP-ANT
L101 AM-ANT
L102 AM OSC
L103 FM-DET-A
L104 FM-DET-B
L106
AM-IFT
CF103
IC101
LA1266G
IC102
HA12016
IC103
LM7001
X101 7.2MHz
IC104
GD4066B
IC105
LA1235
Q101 KTC3194Y
Q102 KTC2240BL
Q103 2SK168D
Q104 KTA107M
Q105 KTA107M
Q106 KTA107M
Q107 KTC3198Y
Q108 KTA107M
Q110 KTA1266Y
Q111 KTC3198Y
Q112 KTA1266Y
Q113 2SK117Y
Q114 KTC3198Y
Q115 KRA107M
FM: 8 8mV
AM: 12.3V
JACK103
IN
OUT
VCR1
MON1
SUB-WOOFER
L
R
S/M
TO MAIN B'D
CP305
FROM FRONT B'D
CP201
FROM FRONT B'D
CP200
CP701
FROM VCR2 B'D
CP202
FROM MAIN B'D
5V


DISTORTION ADJ.
VCO ADJ.
ENTER TUNER ADJ.
TP4
VR104 2K(B)
C128 1000P(P)
C129 3.3/50
C130 1/50
C131 1/50
C132 3.3/50
R182 10K
R125 1K
R127
IC102 HA12016
VCO
VCC
VCO KILL
ST IND
GND
C133 10/50
C134 0.047-M
C136 220/16
C135 680P(P)
C138L
C138R 0.001-M
R128 3K9
C137 150P
0.001N
R130L 51K
*VR103 500K(B)
R130R 51K
FM SEPARATION ADJ.
R146 22K
R132 22K
R181 270
R183 270
C139 22/25
C140 22/25
R178 2.7K
R179 2.7K
R129L 3K
R129R 3K
L107L 19K/38K
L107R 19K/38K
LPF
C166L 2.2/50
C166R 2.2/50
R131L 3.3K
R131R 3.3K
C168L 0.0012-M
C168R 0.0012-M
R115 100(1W)
47/25
82P(C)
D102 1N4148
C116 0.033-M
R117 330K
C118 0.0033-M
R118 1K
R120 1.8K
R186 1.8K
D104 1N4148
TUNED
TP5
R180 15K
Q106 TA107M
Q109L KTD1302B
Q109R KTD1302B
R147L 3.3K
R147R 3.3K
Q108 KTA107M
R171 22
R172 22
C165 0.022
RDS SIGNAL METER ADJ.
C175 100P
C167 0.022
VR105 50K(B)
1N4148 D103
S/M
R173 47K
Q107 KTC3198Y
1N4148 D101
R174 1K
C172 270P
R175 220
R176 220
C173 0.1
C174 47/25
LA1235 IC105
R187 330
C184 0.022
C183 0.022
R188 10K
R189 10K
R190 10K
IC106 LC7073
RC
RD
RS
RES
CLK
DATA
VDD
X103 4.00MHz
R191 10K
C176 0.1
D108 1N4148
C177 10/50
C182 0.1
TDA7330B IC107
INPUT
VREF
COMP
VCC
G
DATA
CLK
XO
VDD
C181 10/50
C180 0.1
C178 27P
C179 27P
X102 4.332M
R192 2M2
R193 680
R194 680
R195 10
D110 5.1V-B
C185 47/25
C186 0.022
Q115 KRA107M
5V
JACK101
DECK
CD
RC-5
R170 1K
R185 47
D109 1N4148
VCR2 · VIDEO
FROM VCR2 B'D
CP202
FROM MAIN B'D
+15
FM SIGNAL
AM SIGNAL
TUNER "L"CH. SIGNAL

## RADIO ALIGNMENT

| | → | ◇ | | | ◇ | |
|---|---|---|---|---|---|---|
| **AM IF** | | | | | | |
| AM | 450KHz | A | 999KHz | L106 | TAPE OUT | ↕ max. |
| **AM RF** | | | | | | |
| MW (AM) * TUNING VOLTAGE | 522KHz | B | 522KHz | L102 | TP3 | DC voltage 1.0 - 1.2V |
| | 1611KHz | | 1611KHz | TC102 | | DC voltage 8.5 - 9.0V |
| MW (AM)* RF SENSITIVITY | 603KHz | B | 603KHz | L101 | TAPE OUT | ↕ max. |
| | 1404KHz | | 1404KHz | TC101 | | |
| MW (AM) AUTO TUNING SENSITIVITY | 999KHz | B | 999KHz | VR101 | TAPE OUT | AM SSG Output level of 800μV/m |
| **FM IF** | | | | | | |
| FM # | 98.0MHz | C | 98.0MHz | L103 | TP1/TP2 (R112) | Zero voltage |
| | | | | L104 | TAPE OUT | Min. distortion |
| **FM RF** | | | | | | |
| FM # AUTO TUNING SENSITIVITY | 98.0MHz | B | 98.0MHz | VR102 | TAPE OUT | FM SSG Output level of 7μV/m |
| **FM MPX** | | | | | | |
| VCO | 98MHz Pilot off | C | 98MHz | VR804 | TP4 | Frequency 76 ± 0.2KHz |
| SEPERATION | 98MHz (L-channel) | C | 98MHz | VR103 | TAPE OUT R-ch | ↕ Seperation Betten than 28dB |
| | 98MHz (R-channel) | | 98MHz | | TAPE OUT L-ch | |

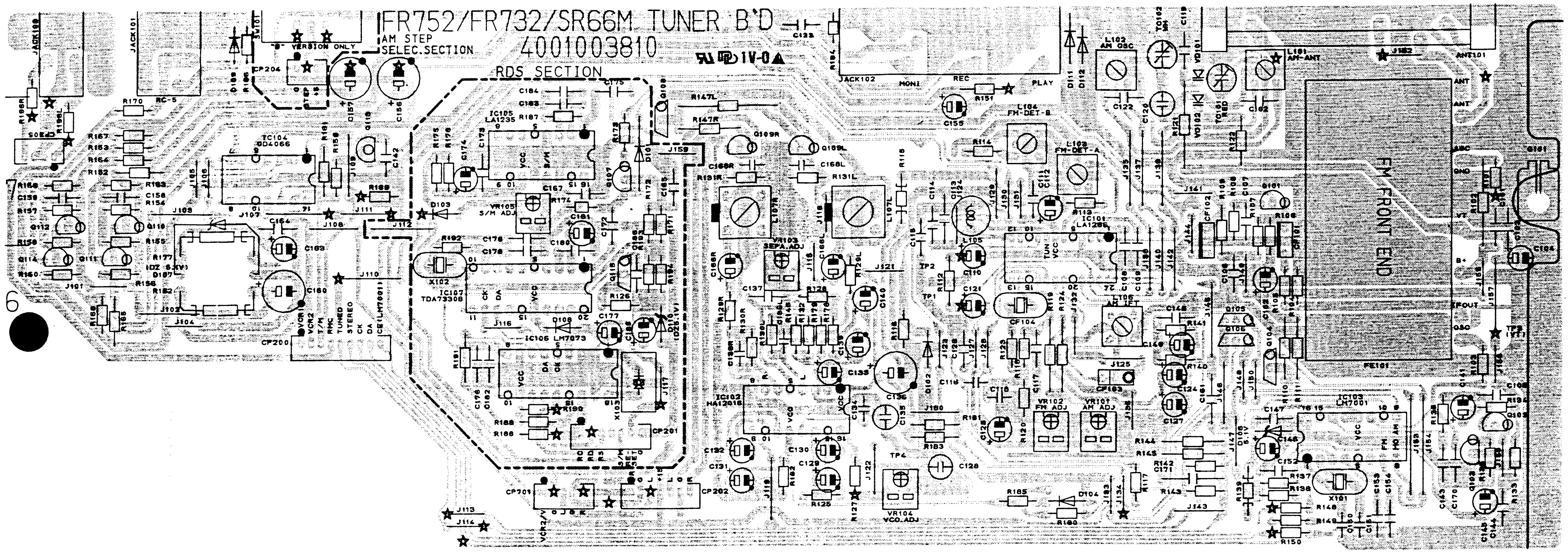
* Mod. 1KHz 30%

# 75KHz dev.

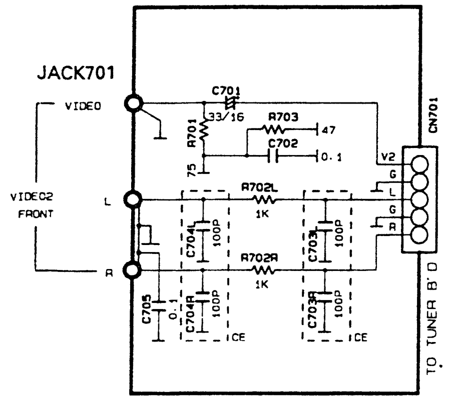
"Bei notwendigem Abgleich ist das Gerät auf die gesetzlich vorgeschriebenen Eckfrequenzen abzugleichen".

↕ Repeat

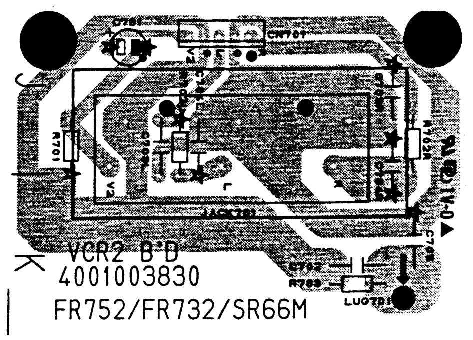
## TUNING BOARD - LAYOUT DIAGRAM


FR752/FR732/SR66M TUNER B'D
4001003810
AM STEP
SELEC.SECTION
RDS SECTION
FM FRONT END
JACK101
JACK102
VERSION ONLY
VR103 SEPA.ADJ
VR104 VCO.ADJ
VR102 FM ADJ
VR101 AM ADJ
VR105 S/H ADJ
FE101
6

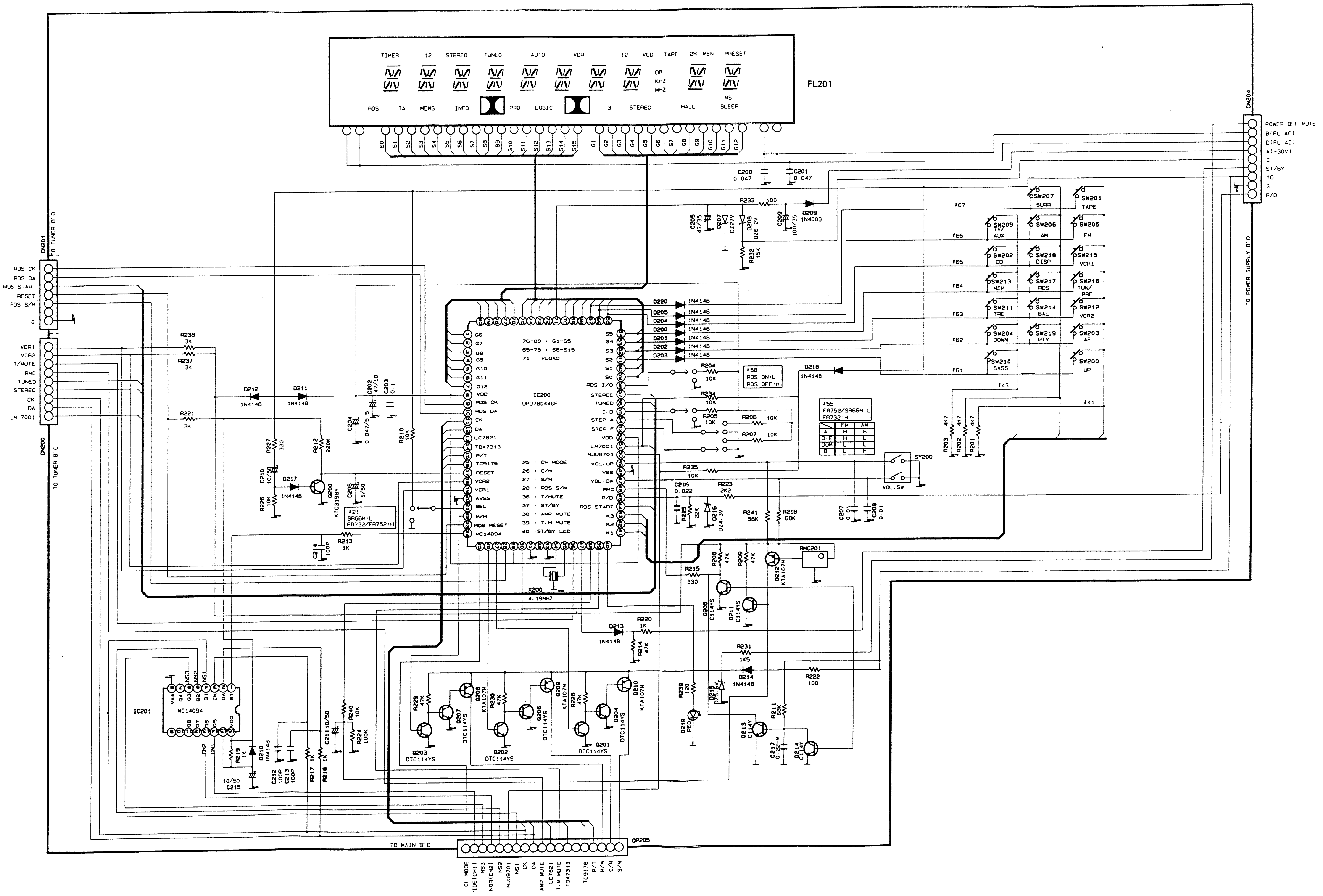
## VCR2 BOARD - CIRCUIT DIAGRAM


JACK701
VIDEO
VIDEO2
FRONT
L
R
C701
33/16
R701
75
R703
47
C702
0.1
R702L
1K
R702R
1K
C704L
100P
C703L
100P
C705
0.1
C704R
100P
C703R
100P
ICE
ICE
CN701
V2
G
L
G
R
TO TUNER B'D

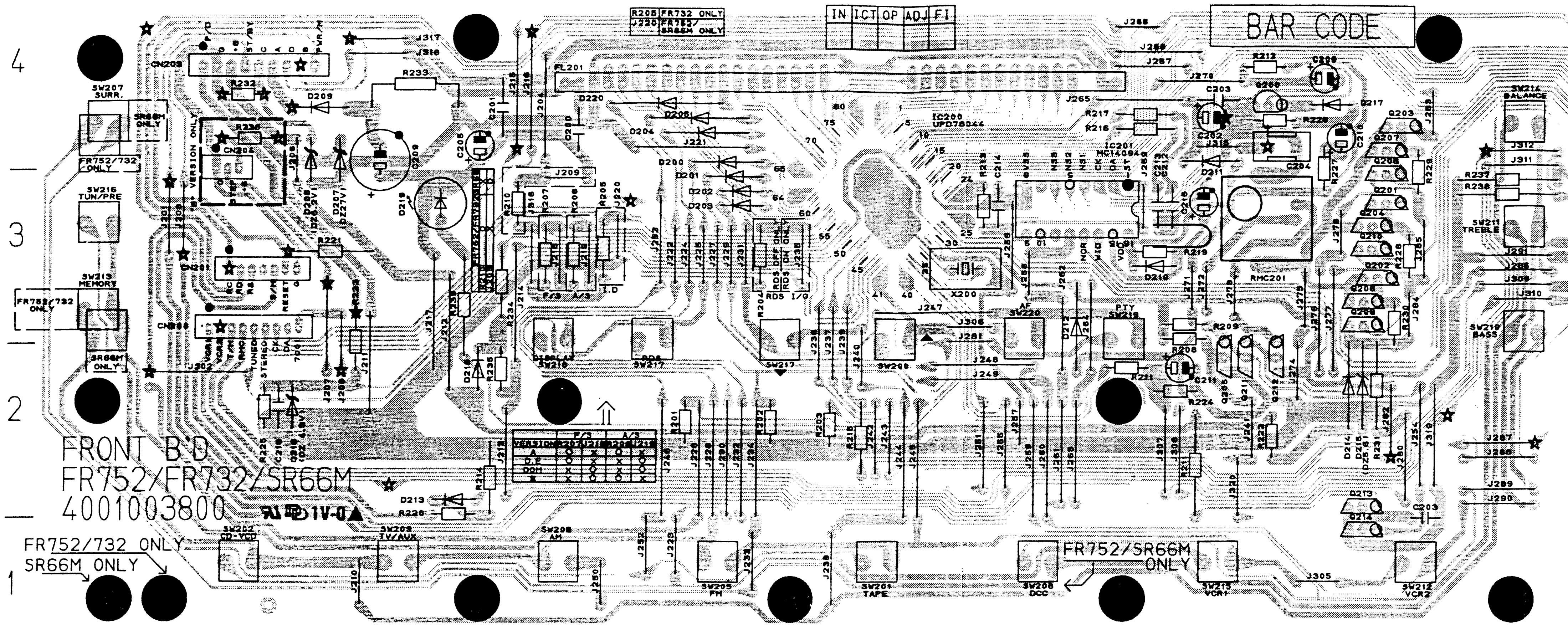
## VCR2 BOARD - LAYOUT DIAGRAM


VCR2 B'D
4001003830
FR752/FR732/SR66M
CN701
JACK701
R701

# FRONT BOARD - CIRCUIT DIAGRAM

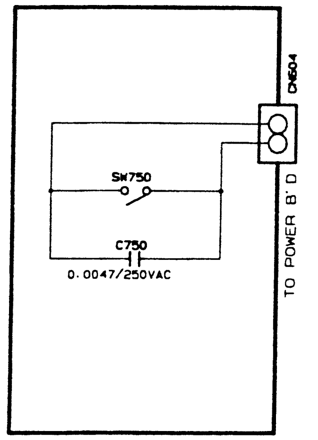

FL201
TIMER
12
STEREO
TUNED
AUTO
VCR
12
VCD
TAPE
2M
MEN
PRESET
DB
KHZ
MHZ
RDS
TA
NEWS
INFO
PRO
LOGIC
3
STEREO
HALL
MS
SLEEP
S0 S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 S13 S14 S15
G1 G2 G3 G4 G5 G6 G7 G8 G9 G10 G11 G12
C200 0.047
C201 0.047
CN204
POWER OFF MUTE
B(FL AC)
D(FL AC)
A(-30V)
C
ST/BY
+6
G
P/D
TO POWER SUPPLY B'D
R233 100
D209 1N4003
C205 47/35
D207 DZ27V
D208 DZ6.2V
C209 100/35
R232 15K
SW207 SURR
SW201 TAPE
SW209 TV/AUX
SW206 AM
SW205 FM
SW202 CD
SW218 DISP
SW215 VCR1
SW213 MEM
SW217 RDS
SW216 TUN/PRE
SW211 TRE
SW214 BAL
SW212 VCR2
SW204 DOWN
SW219 PTY
SW203 AF
SW210 BASS
SW200 UP
#67
#66
#65
#64
#63
#62
#61
#43
#41
D220 1N4148
D205 1N4148
D204 1N4148
D200 1N4148
D201 1N4148
D202 1N4148
D203 1N4148
D218 1N4148
R204 10K
#58
RDS ON:L
RDS OFF:H
R234 10K
R205 10K
R206 10K
R207 10K
#55
FR752/SR66M:L
FR732:H
FM AM
A H H
D.E H L
DOM L L
B L H
R203 4K7
R202 4K7
R201 4K7
SY200
VOL.SW
R235 10K
C216 0.022
R223 2K2
R225 22K
D216 DZ4.3V
R241 68K
R218 68K
C207 0.1
C208 0.01
CN201
TO TUNER B'D
RDS CK
RDS DA
RDS START
RESET
RDS S/M
G
VCR1
VCR2
T/MUTE
RMC
TUNED
STEREO
CK
DA
LM 7001
CN200
TO TUNER B'D
R238 3K
R237 3K
R221 3K
D212 1N4148
D211 1N4148
C202 47/10
C203 0.1
C204 0.047/5.5
R210 10K
R227 330
R212 220K
C210 10/50
D217 1N4148
R226 10K
Q200 KTC3198Y
C206 1/50
#21
SR66M:L
FR732/FR752:H
C214 100P
R213 1K
IC200
UPD78044GF
76-80 : G1-G5
65-75 : S6-S15
71 : VLOAD
G6 G7 G8 G9 G10 G11 G12
VDD
RDS CK
RDS DA
CK
DA
LC7821
TDA7313
P/T
TC9176
RESET
VCR2
VCR1
AVSS
SEL
M/M
RDS RESET
MC14094
25 : CH MODE
26 : C/M
27 : S/M
28 : RDS S/M
36 : T/MUTE
37 : ST/BY
38 : AMP MUTE
39 : T.M MUTE
40 : ST/BY LED
S5 S4 S3 S2 S1 S0
RDS I/O
STEREO
TUNED
I.D
STEP A
STEP F
VDD
LM7001
NJU9701
VOL.UP
VSS
VOL.DN
RMC
P/D
RDS START
K3 K2 K1
X200
4.19MHZ
RMC201
R208 47K
R209 47K
Q212 KTA107M
R215 330
Q205 C114YS
Q211 C114YS
D213 1N4148
R220 1K
R214 47K
R231 1K5
D214 1N4148
R222 100
R239 120
D215 DZ5.6V
D219 RED
R211 68K
Q213 C114Y
C217 0.22-M
Q214 C114Y
IC201
MC14094
VSS Q4 Q3 Q2 Q1 CK DA ST
Q8 Q7 Q6 Q5 VDD
NS3 NS2 NS1
CH2
CH1
R219 1K
D210 1N4148
10/50
C215
C212 100P
C213 100P
R217 1K
R216 1K
C211 10/50
R240 10K
R224 100K
R229 47K
Q207 DTC114YS
Q208 KTA107M
R230 47K
Q203 DTC114YS
Q202 DTC114YS
Q206 DTC114YS
Q209 KTA107M
R228 47K
Q201 DTC114YS
Q204 DTC114YS
Q210 KTA107M
TO MAIN B'D
CP205
CH MODE
IDE(CH1)
NS3
NOR(CH2)
NS2
NJU9701
NS1
CK
DA
AMP MUTE
LC7821
T.M MUTE
TDA7313
TC9176
P/T
M/M
C/M
S/M

## FRONT BOARD - LAYOUT DIAGRAM



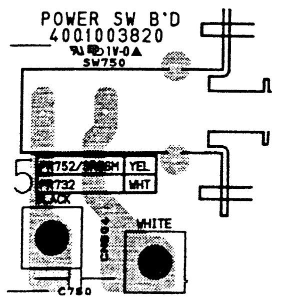
4
3
2
1
FRONT B'D
FR752/FR732/SR66M
4001003800
1V-0
FR752/732 ONLY
SR66M ONLY
BAR CODE
IN ICT OP ADJ FI
R205 FR732 ONLY
J230 FR752/SR66M ONLY
FR752/SR66M ONLY
IC200 UPD78044
IC201 MC14094
X200
RMC201
SW207 SURR.
SW216 TUN/PRE
SW213 MEMORY
SW214 BALANCE
SW211 TREBLE
SW210 BASS
SW202 CD-VCD
SW203 TV/AUX
SW206 AM
SW205 FM
SW201 TAPE
SW208 DCC
SW215 VCR1
SW212 VCR2
ELECT.VOL. SY200
CP205

## POWER SWITCH BOARD - CIRCUIT DIAGRAM



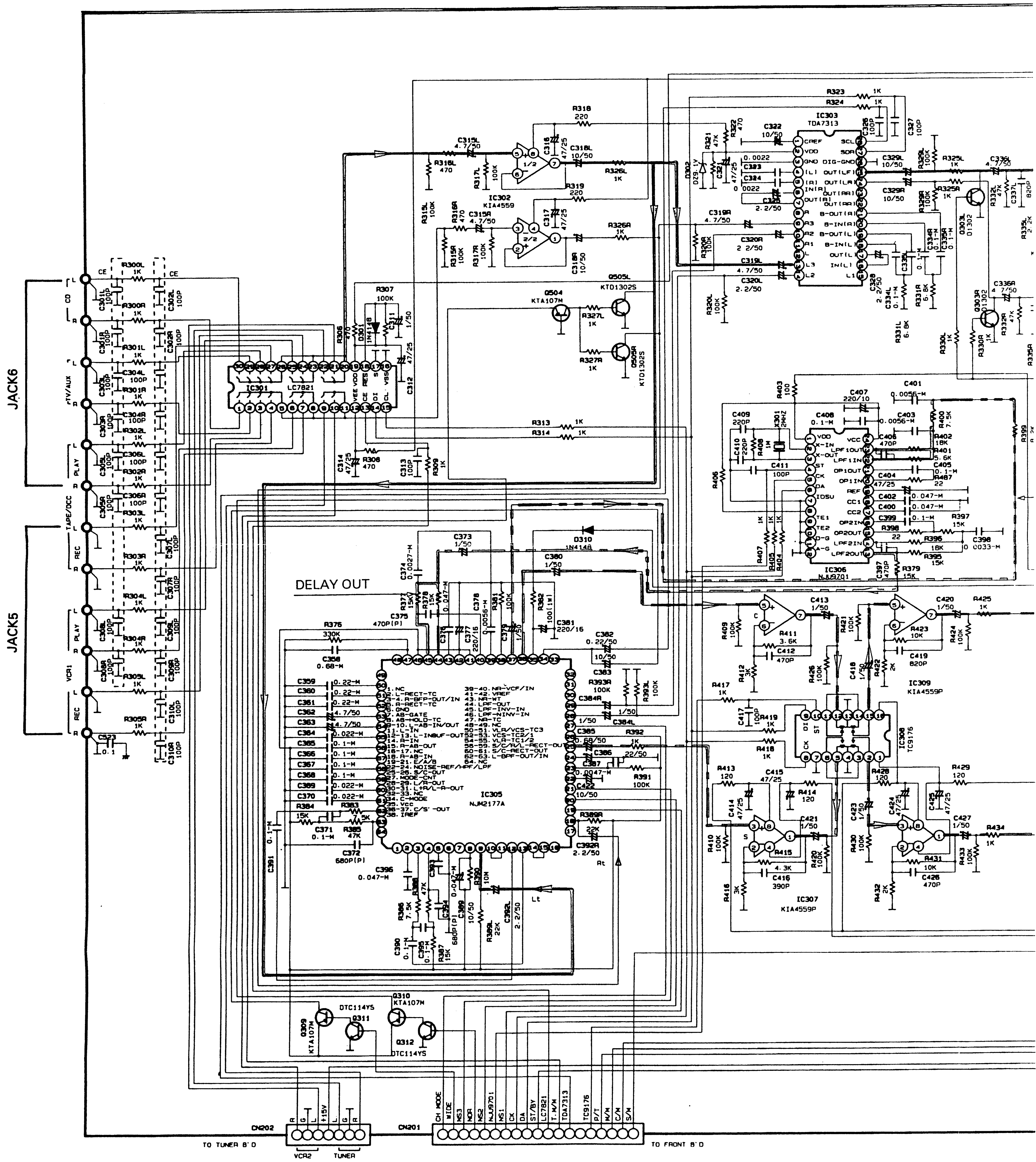
CN504
SW750
C750
0.0047/250VAC
TO POWER B'D

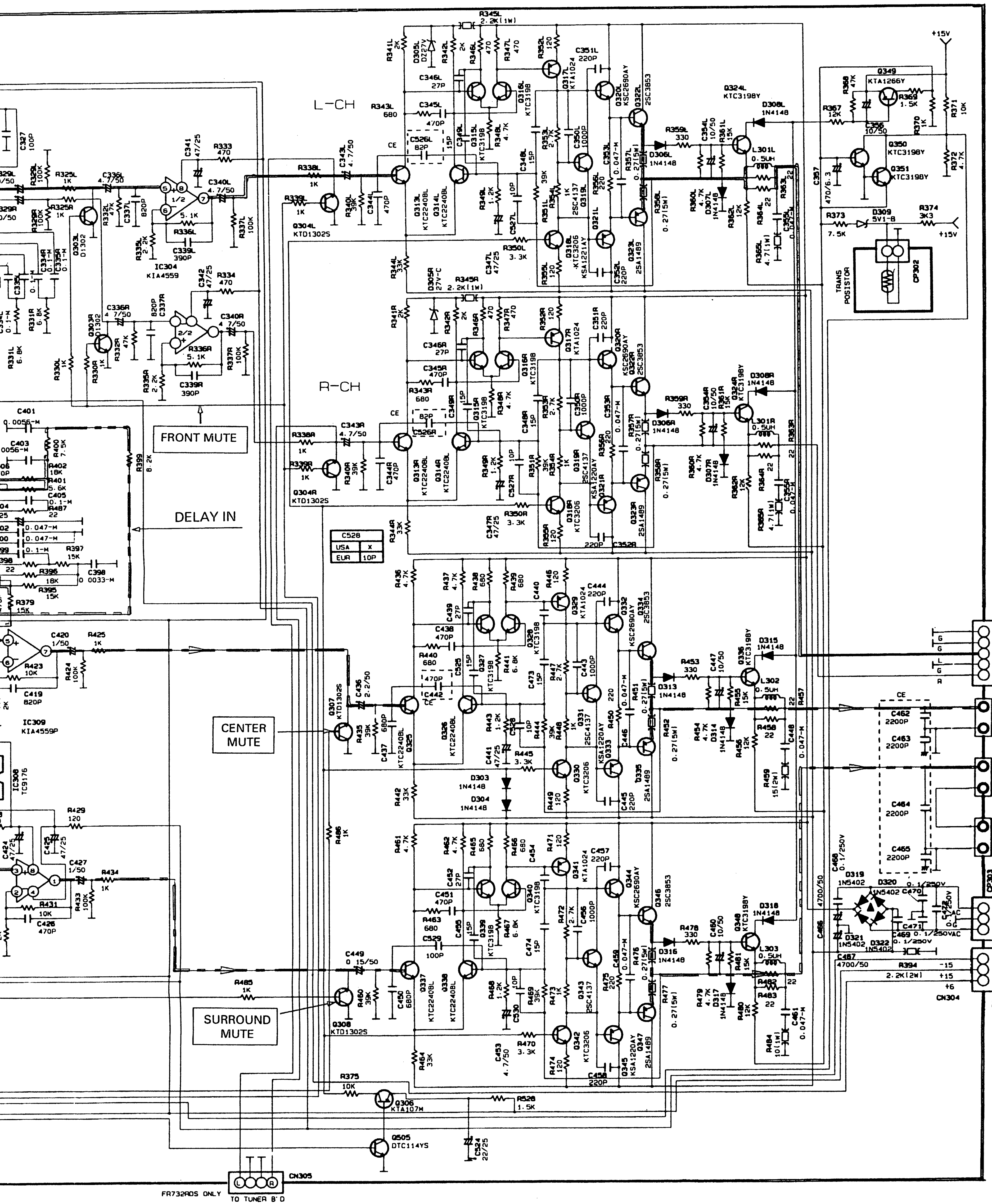
## POWER SWITCH BOARD - LAYOUT DIAGRAM



POWER SW B'D
4001003820
1V-0
SW750
5
FR752/SR66M YEL
FR732 WHT
BLACK
WHITE
C750

# MAIN BOARD - CIRCUIT DIAGRAM


JACK6
JACK5
CD
TV/AUX
PLAY
TAPE/DCC
REC
VCR1
CE
IC301
LC7821
IC302
KIA4559
IC303
TDA7313
IC305
NJM2177A
IC306
NJU9701
IC307
KIA4559P
IC308
TC9176
IC309
KIA4559P
Q504
KTA107M
Q505L
KTD1302S
Q505R
KTD1302S
Q303L
D1302
Q303R
D1302
D301
1N4148
D310
1N4148
X301
DELAY OUT
Q309
KTA107M
Q311
DTC114YS
Q310
KTA107M
Q312
DTC114YS
R
G
L
+15V
L
G
R
CH MODE
WIDE
NS3
NOR
NS2
NJU9701
NS1
CK
DA
ST/BY
LC7821
T.M/M
TDA7313
TC9176
P/T
M/M
C/M
S/M
CN202
CN201
TO TUNER B'D
VCR2
TUNER
TO FRONT B'D
Lt
Rt

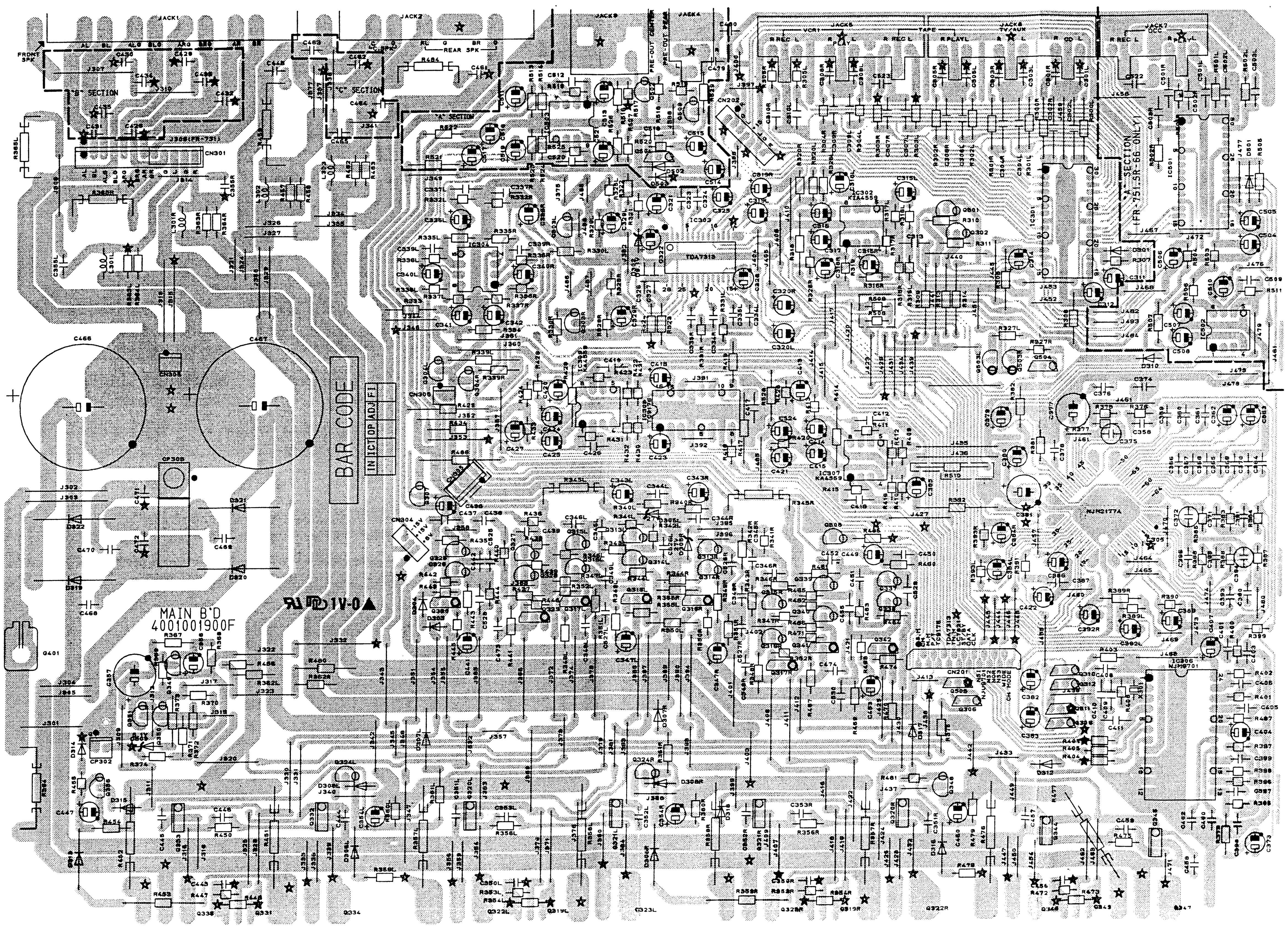

L-CH
R-CH
FRONT MUTE
DELAY IN
CENTER MUTE
SURROUND MUTE
IC304 KIA4559
IC309 KIA4559P
IC308 TC9176
Q304L KTD1302S
Q304R KTD1302S
Q307 KTD1302S
Q308 KTD1302S
Q306 KTA107M
Q505 DTC114YS
C528
USA X
EUR 10P
R345L 2.2K(1W)
R345R 2.2K(1W)
+15V
Q349 KTA1266Y
Q350 KTC3198Y
Q351 KTC3198Y
D309 5V1-B
TRANS POSISTOR
CP302
CN301 TO SPK B'D
CENTER SPK
REAR SPK
JACK2
CP303 FROM TRANS
CN304 TO SUPPLY B'D
C467 4700/50
R394 2.2K(2W)
-15
+15
+6
CN305
FR732RDS ONLY
TO TUNER B'D

FRONT "L"CH. SIGNAL

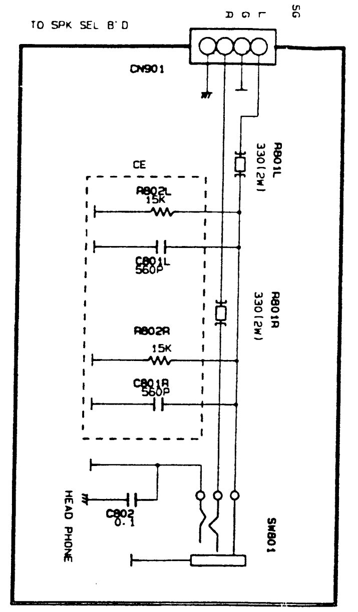
CENTER SIGNAL

SURROUND SIGNAL

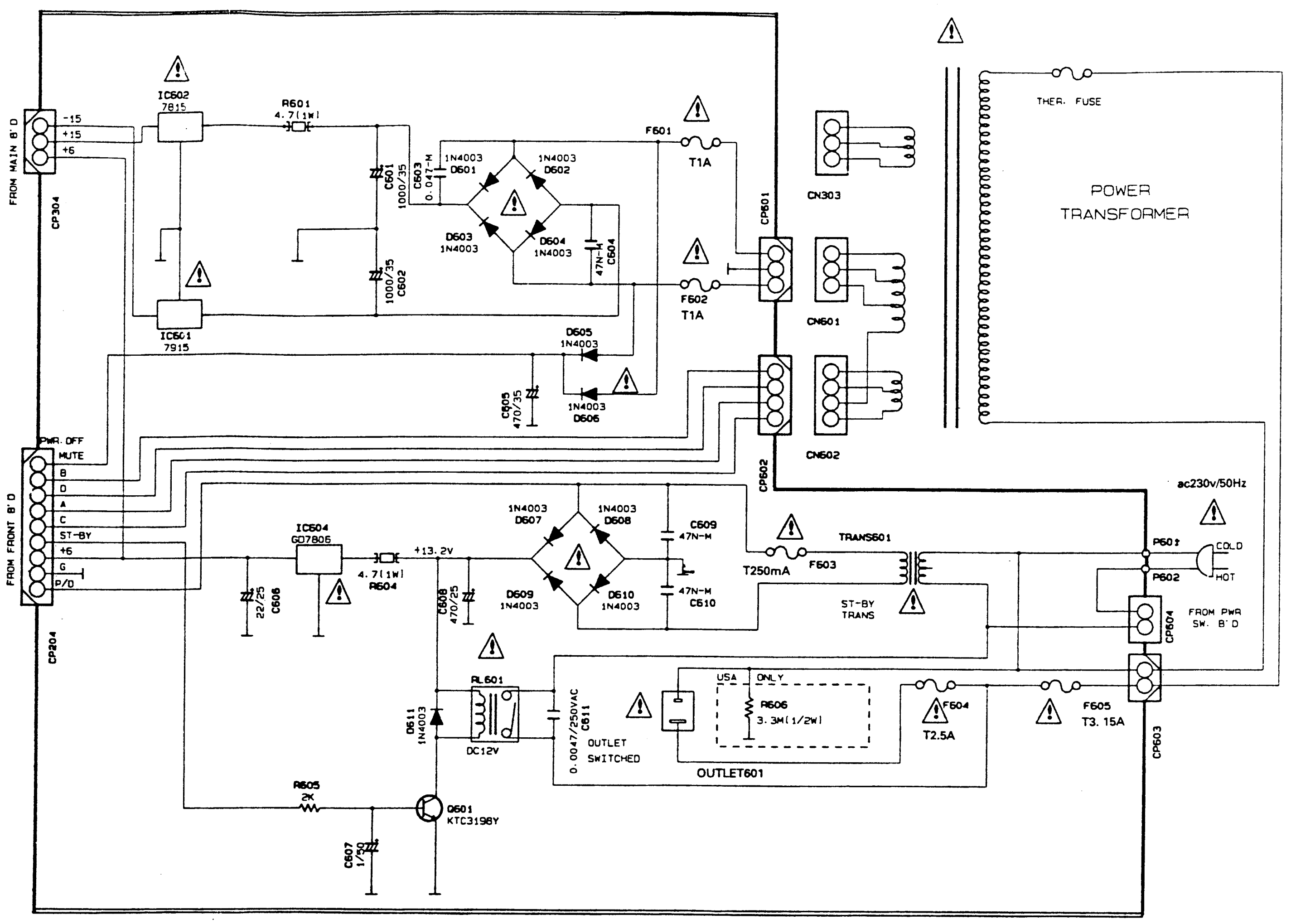
# MAIN BOARD - LAYOUT DIAGRAM


JACK1
JACK2
JACK3
JACK4
JACK5
JACK6
JACK7
FRONT SPK
REAR SPK
"B" SECTION
"C" SECTION
"A" SECTION
PRE-OUT CENTER
PRE-OUT REAR
VCR1
TAPE
TV/AUX
DCC
CN301
CN202
CN201
CN304
CN305
CN306
C466
C467
CP305
CP302
G401
BAR CODE
IN IC OP ADJ FI
MAIN B'D
4001001900F
1V-0
TDA7318
IC303
IC301
IC302
IC306
IC307
NJM2177A
NJM8701
"A" SECTION (FR-751,SR-56 ONLY)

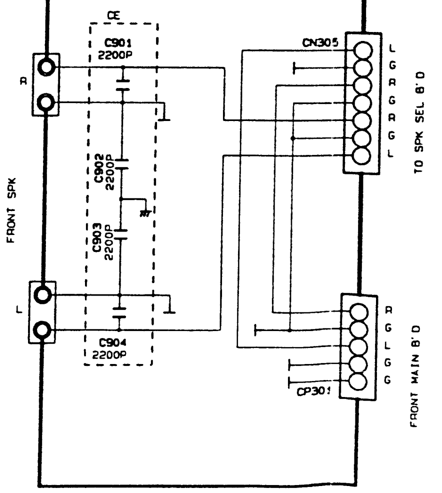
## HEADPHONE BOARD - CIRCUIT DIAGRAM


TO SPK SEL B'D
R
G
L
SG
CN901
R801L
330(2W)
CE
R802L
15K
C801L
560P
R801R
330(2W)
R802R
15K
C801R
560P
HEAD PHONE
C802
0.1
SW801

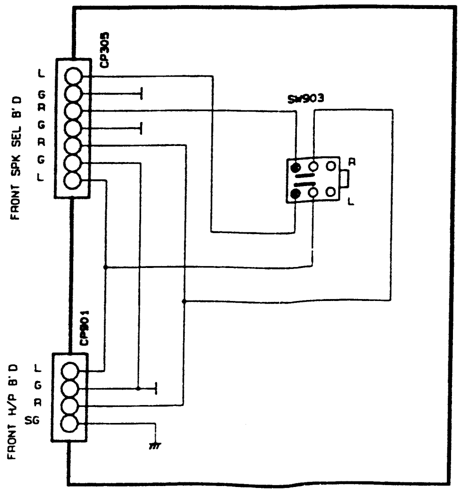
## POWER SUPPLY BOARD - CIRCUIT DIAGRAM


FROM MAIN B'D
CP304
-15
+15
+6
IC602
7815
R601
4.7(1W)
C601
1000/35
C603
0.047-M
1N4003
D601
1N4003
D602
D603
1N4003
D604
1N4003
47N-M
C604
1000/35
C602
IC601
7915
F601
T1A
F602
T1A
D605
1N4003
C605
470/35
1N4003
D606
CP601
CN303
CN601
CN602
CP602
THER. FUSE
POWER
TRANSFORMER
FROM FRONT B'D
CP204
PWR. OFF
MUTE
B
D
A
C
ST-BY
+6
G
P/D
IC604
GD7806
4.7(1W)
R604
+13.2V
22/25
C606
C608
470/25
1N4003
D607
1N4003
D608
D609
1N4003
D610
1N4003
C609
47N-M
47N-M
C610
T250mA
F603
TRANS601
ST-BY
TRANS
ac230v/50Hz
P601
P602
COLD
HOT
CP604
FROM PWR
SW. B'D
RL601
DC12V
D611
1N4003
0.0047/250VAC
C611
OUTLET
SWITCHED
USA ONLY
R606
3.3M(1/2W)
OUTLET601
F604
T2.5A
F605
T3.15A
CP603
R605
2K
Q601
KTC3198Y
C607
1/50

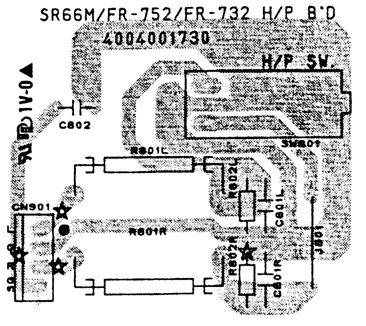
## SPAEKER BOARD - CIRCUIT DIAGRAM (FR732 ONLY)


FRONT SPK
R
L
CE
C901
2200P
C902
2200P
C903
2200P
C904
2200P
CN305
L
G
R
G
R
G
L
TO SPK SEL B'D
R
G
L
G
G
CP301
FRONT MAIN B'D

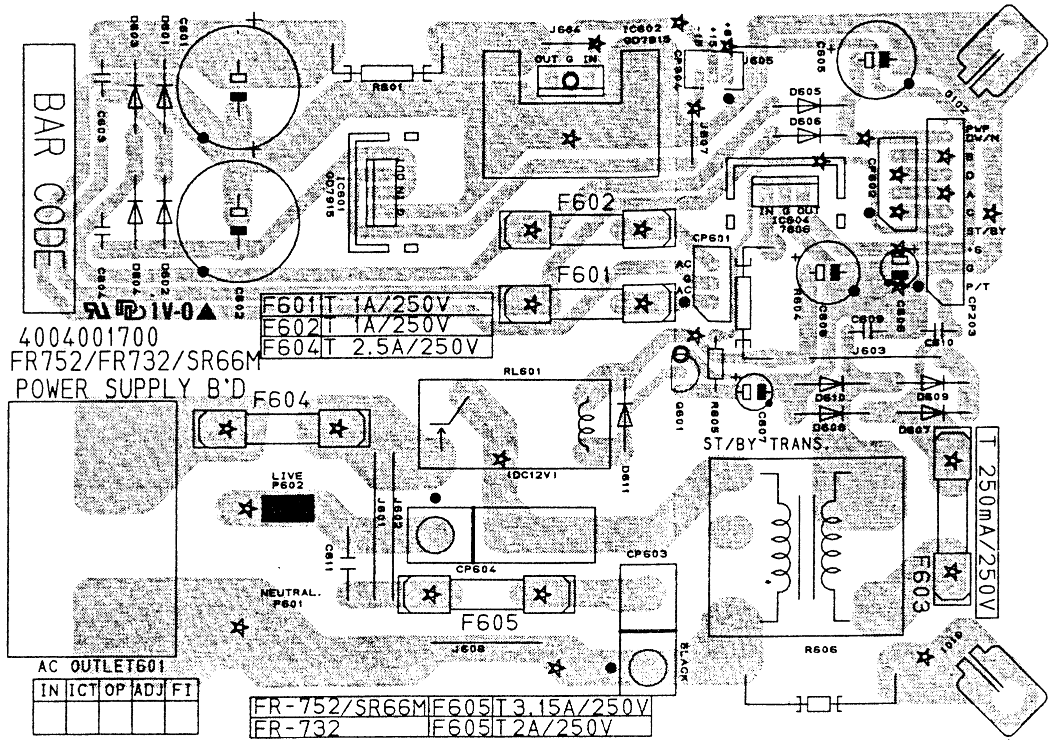
## SPEAKER SELECTOR BOARD - CIRCUIT DIAGRAM (FR732 ONLY)


FRONT SPK SEL B'D
CP305
L
G
R
G
R
G
L
SW903
R
L
CP901
FRONT H/P B'D
L
G
R
SG

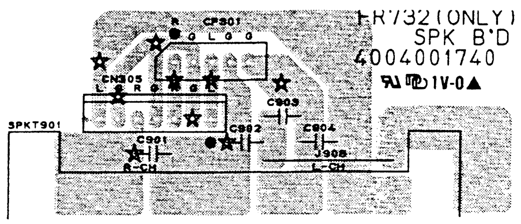
## HEADPHONE BOARD - LAYOUT DIAGRAM


SR66M/FR-752/FR-732 H/P B'D
4004001730
H/P SW.
1V-0▲
C802
R801L
SW801
R801R
CN901
R802L
R802R
C801L
C801R

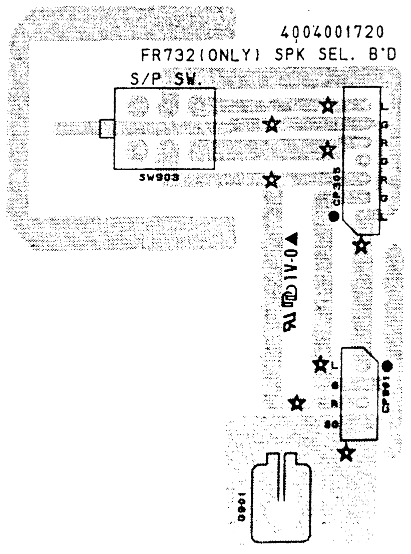
## POWER SUPPLY BOARD - LAYOUT DIAGRAM


BAR CODE
1V-0▲
F601 T 1A/250V
F602 T 1A/250V
F604 T 2.5A/250V
4004001700
FR752/FR732/SR66M
POWER SUPPLY B'D
F604
F602
F601
F605
F603
T 250mA/250V
RL601
(DC12V)
ST/BY TRANS.
LIVE
NEUTRAL.
CP603
CP604
CP601
IC601
IC602
IC604
R601
R606
J608
BLACK
AC OUTLET601
IN ICT OP ADJ FI
FR-752/SR66M F605 T 3.15A/250V
FR-732 F605 T 2A/250V

## SPAEKER BOARD - LAYOUT DIAGRAM (FR732 ONLY)


FR732(ONLY)
SPK B'D
4004001740
1V-0▲
CP901
CN305
SPKT901
C901
C902
C903
C904
J908
R-CH
L-CH

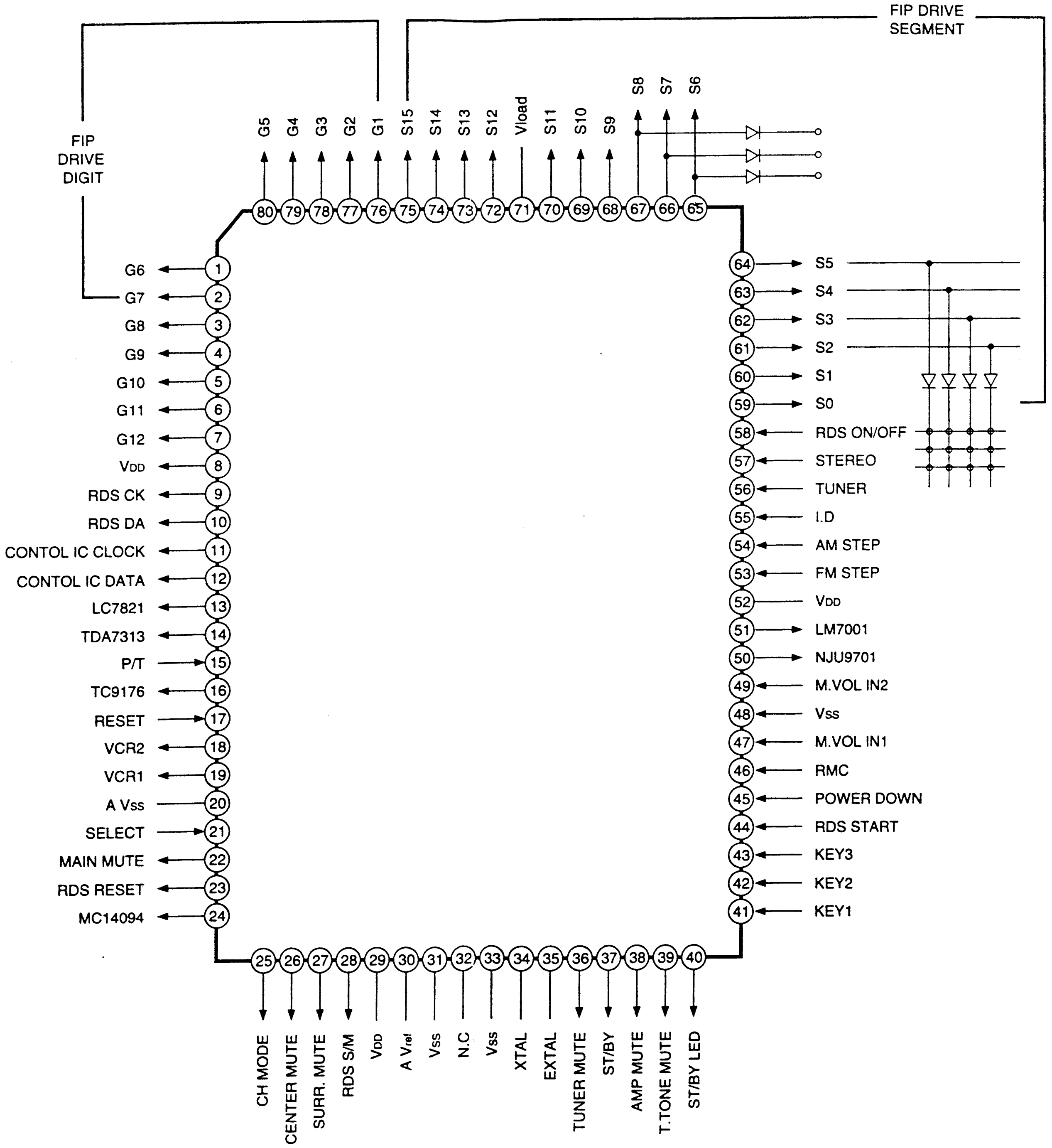
## SPEAKER SELECTOR BOARD - LAYOUT DIAGRAM (FR732 ONLY)


4004001720
FR732(ONLY) SPK SEL. B'D
S/P SW.
SW903
1V-0▲

# SERVICE TEST PROGRAM - μPD78044AGF

## IC200 : μPD 78044AGF (8bit CMOS Microprocessor)

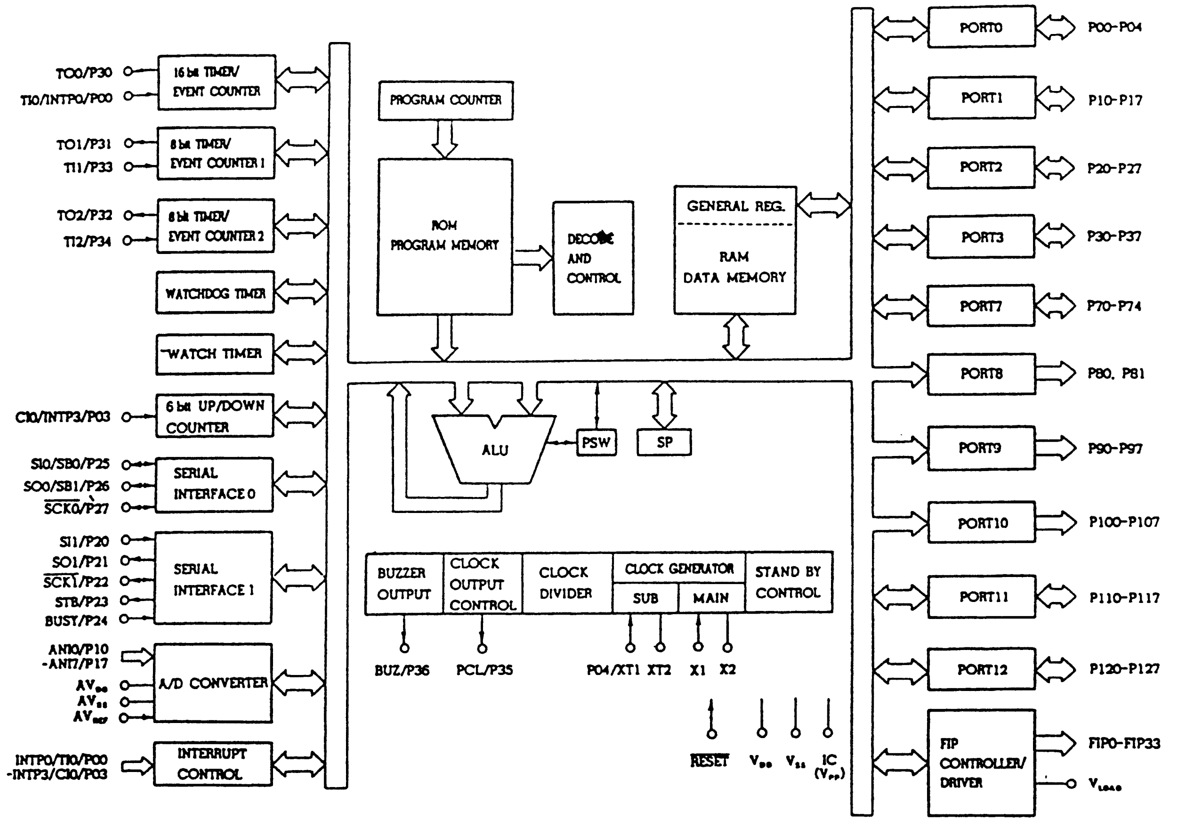
### 1. Pin Configuration


FIP DRIVE SEGMENT
FIP DRIVE DIGIT
G5 G4 G3 G2 G1 S15 S14 S13 S12 Vload S11 S10 S9 S8 S7 S6
80 79 78 77 76 75 74 73 72 71 70 69 68 67 66 65
G6 1
G7 2
G8 3
G9 4
G10 5
G11 6
G12 7
VDD 8
RDS CK 9
RDS DA 10
CONTOL IC CLOCK 11
CONTOL IC DATA 12
LC7821 13
TDA7313 14
P/T 15
TC9176 16
RESET 17
VCR2 18
VCR1 19
A Vss 20
SELECT 21
MAIN MUTE 22
RDS RESET 23
MC14094 24
64 S5
63 S4
62 S3
61 S2
60 S1
59 S0
58 RDS ON/OFF
57 STEREO
56 TUNER
55 I.D
54 AM STEP
53 FM STEP
52 VDD
51 LM7001
50 NJU9701
49 M.VOL IN2
48 Vss
47 M.VOL IN1
46 RMC
45 POWER DOWN
44 RDS START
43 KEY3
42 KEY2
41 KEY1
25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
CH MODE
CENTER MUTE
SURR. MUTE
RDS S/M
VDD
A Vref
Vss
N.C
Vss
XTAL
EXTAL
TUNER MUTE
ST/BY
AMP MUTE
T.TONE MUTE
ST/BY LED

### 2. Key Matrix

| OUT<br>IN | K. SCAN2<br>PIN61 | K. SCAN3<br>PIN62 | K. SCAN4<br>PIN63 | K. SCAN5<br>PIN64 | K. SCAN6<br>PIN65 | K. SCAN7<br>PIN66 | K. SCAN8<br>PIN67 |
|---|---|---|---|---|---|---|---|
| KEY IN1<br>PIN41 | TUNING<br>UP | AF | VCR2 | TUNING<br>PRESET | VCR1 | FM | TAPE |
| KEY IN2<br>PIN42 |  | PTY | BALANCE | RDS | DISPLAY | AM | SURR. |
| KEY IN3<br>PIN43 | KEY IN43<br>PIN43 | TUNING<br>DOWN | TREBLE | MEMORY | CD | AUX | - |

### 3. Block Diagram


TO0/P30
TI0/INTP0/P00
16 bit TIMER/ EVENT COUNTER
TO1/P31
TI1/P33
8 bit TIMER/ EVENT COUNTER 1
TO2/P32
TI2/P34
8 bit TIMER/ EVENT COUNTER 2
WATCHDOG TIMER
WATCH TIMER
CI0/INTP3/P03
6 bit UP/DOWN COUNTER
SI0/SB0/P25
SO0/SB1/P26
SCK0/P27
SERIAL INTERFACE 0
SI1/P20
SO1/P21
SCK1/P22
STB/P23
BUSY/P24
SERIAL INTERFACE 1
ANI0/P10 -ANI7/P17
AVDD
AVSS
AVREF
A/D CONVERTER
INTP0/TI0/P00 -INTP3/CI0/P03
INTERRUPT CONTROL
PROGRAM COUNTER
ROM PROGRAM MEMORY
DECODE AND CONTROL
GENERAL REG.
RAM DATA MEMORY
ALU
PSW
SP
BUZZER OUTPUT
CLOCK OUTPUT CONTROL
CLOCK DIVIDER
CLOCK GENERATOR
SUB
MAIN
STAND BY CONTROL
BUZ/P36
PCL/P35
P04/XT1
XT2
X1
X2
RESET
VDD
VSS
IC (VPP)
PORT0
P00-P04
PORT1
P10-P17
PORT2
P20-P27
PORT3
P30-P37
PORT7
P70-P74
PORT8
P80, P81
PORT9
P90-P97
PORT10
P100-P107
PORT11
P110-P117
PORT12
P120-P127
FIP CONTROLLER/ DRIVER
FIP0-FIP33
VLOAD

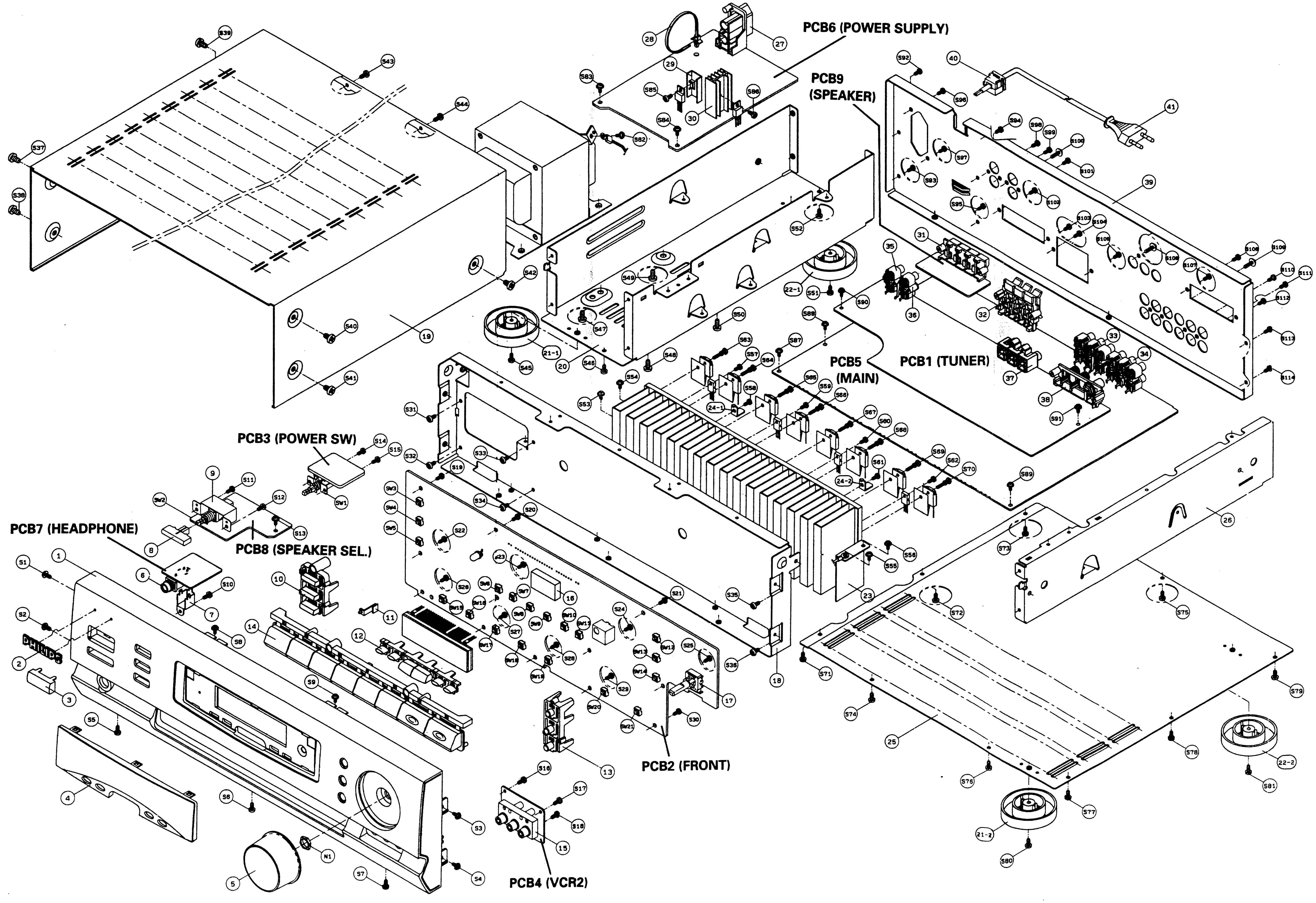
## SERVICE TEST PROGRAM - µPD78044AGF

### 4. Input/Output Terminal Functions

<table>
<tr><th>Pin No.</th><th>Symbol</th><th>Description</th></tr>
<tr><td>1~7</td><td>$G_6 \sim G_{12}$</td><td>Grid signal output for FIP.</td></tr>
<tr><td>8</td><td>$V_{DD}$</td><td>+5V power supply.</td></tr>
<tr><td>9/10</td><td>RDS CLK/DATA</td><td>RDS CLOCK/DATA input for LC7073.</td></tr>
<tr><td>11/12</td><td>CLK/DATA</td><td>CLOCK/DATA output for TDA7313, TC9176, NJU9701, LC7821, LM7001 and MC14094.</td></tr>
<tr><td>13</td><td>LC7821</td><td>Chip enable output for LC7821.</td></tr>
<tr><td>14</td><td>TDA7313</td><td>Chip enable output for TDA7313.</td></tr>
<tr><td>15</td><td>PROTECTION</td><td>Signal input for protection.<br>If it is low, all channel mute signal levels are turned to high to protect speakers and this unit.<br>At abnormal condition, after 3 seconds elapses, it does check protection.</td></tr>
<tr><td>16</td><td>TC9176</td><td>Chip enable output for TC9176.</td></tr>
<tr><td>17</td><td>RESET</td><td>Input for resetting CPU.(At "H", it is active)</td></tr>
<tr><td>18/19</td><td>VCR IN 1<br>/VCR IN 2</td><td>Output to select the video signal VCR1 or VCR2.<br>Output data for each mode is as follows.
<table>
<tr><th>MODE</th><th>VCR IN 1</th><th>VCR IN 2</th><th>REMARKS</th></tr>
<tr><td>VCR 1</td><td>H</td><td>L</td><td>Initial settings</td></tr>
<tr><td>VCR 2</td><td>L</td><td>H</td><td></td></tr>
<tr><td>OTHERS</td><td>△</td><td>△</td><td>△: Previous state</td></tr>
</table>
※ Last memory function is available</td></tr>
<tr><td>20</td><td>A.Vss</td><td>Analog ground</td></tr>
<tr><td>21</td><td>SELECTOR</td><td>Input to select FR-732RDS.(At "H", it is active)</td></tr>
<tr><td>22</td><td>MAIN MUTE</td><td>Output for main mute.<br>Output is low level under the following conditions.<br>1. When power is turned on or off.<br>2. When function is changed.<br>3. When "-∞ mute signal" is received from the commander.</td></tr>
<tr><td>23</td><td>RDS RESET</td><td>Input to select LC7073.</td></tr>
<tr><td>24</td><td>MC14094 STROBE</td><td>Chip enable output for MC14094.</td></tr>
<tr><td>25</td><td>CH. MODE</td><td>Output for setting of PRO-LOGIC ,3-STEREO mode.<br>According to each mode, data output is as follows.
<table>
<tr><th>MODE</th><th>OUTPUT</th></tr>
<tr><td>3-STEREO</td><td>High impedance</td></tr>
<tr><td>PRO-LOGIC</td><td>H</td></tr>
<tr><td>OTHERS</td><td>L</td></tr>
</table></td></tr>
<tr><td>26</td><td>CENTER MUTE</td><td>Output for center mute.<br>Output is low level under the following conditions.<br>1. When power is turned on or off.<br>2. When center mode is turned on or off.<br>3. When center mode is switched.<br>4. When test tone mode is switched on, or when output is not directed to center.<br>5. When "-∞ mute signal" is received from the commander.</td></tr>
<tr><td>27</td><td>SURR. MUTE</td><td>Output for surround mute.<br>Output is low level under the following conditions.<br>1. When power is turned on or off.<br>2. When surround mode is turned on or off.<br>3. When test tone mode is changed, or when output is not directed to surround.<br>4. When delay time is activated.<br>5. When "-∞ mute signal" is received from the commander.</td></tr>
<tr><td>28</td><td>RDS S/M</td><td>Input to detect the signal strength of RDS station.</td></tr>
<tr><td>29</td><td>$V_{DD}$</td><td>+5V power supply.</td></tr>
<tr><td>30</td><td>A.Vref</td><td>Reference voltage.(Connected to +5V, Not $V_{DD}$)</td></tr>
<tr><td>31</td><td>Vss</td><td>Ground</td></tr>
<tr><td>32</td><td>NC</td><td>Not used !</td></tr>
<tr><td>33</td><td>Vss</td><td>Ground</td></tr>
<tr><td>34/35</td><td>XTAL/EXTAL</td><td>Input and Output for crystal oscillator.</td></tr>
<tr><td>36</td><td>TUNER MUTE</td><td>Output for tuner mute.<br>Output is high level under the following conditions.<br>1. When power is turned on or off.<br>2. When tuner band is changed.<br>3. When tuning up or down button is pressed.<br>4. When preset button is pressed.<br>5. When displayed preset number is changed during memory scan.<br>6. When "-∞ mute signal" is received from the commander.</td></tr>
<tr><td>37</td><td>ST-BY</td><td>When the power is on, control data output is "H".<br>When the power is off, control data output is "L" and last memory function is activated.</td></tr>
<tr><td>38</td><td>AMP MUTE</td><td>Output for all amplifier mute.<br>Output is high level under the following conditions.<br>1. When power is turned on or off.<br>2. When the protection terminal's level is high.</td></tr>
<tr><td>39</td><td>T.TONE MUTE</td><td>Output for PRO-LOGIC test ton mute.<br>Output is high level under the following conditions.<br>When power is turned on or off.</td></tr>
<tr><td>40</td><td>ST-BY LED</td><td>Output to light up stand-by LED.(At "H", it is active)</td></tr>
<tr><td>41~43</td><td>$KEY_1 \sim KEY_3$</td><td>Input data of $K_1 \sim K_3$ for key scan.</td></tr>
<tr><td>44</td><td>RDS START</td><td>Input for LC7073 data start.</td></tr>
<tr><td>45</td><td>POWER DOWN</td><td>Input for power down.(At "L", it is active)</td></tr>
<tr><td>46</td><td>RMC</td><td>Input for remote control signal.(At "L", it is active)</td></tr>
<tr><td>47/49</td><td>M.VOL. IN 1/IN 2</td><td>Signal input to decrease or increase volume by volume encoder.</td></tr>
<tr><td>48</td><td>Vss</td><td>Ground</td></tr>
<tr><td>50</td><td>NJU9701</td><td>Chip enable output for NJU9701.</td></tr>
<tr><td>51</td><td>LM7001</td><td>Chip enable output for LM7001.</td></tr>
<tr><td>52</td><td>$V_{DD}$</td><td>+5V power supply.</td></tr>
</table>

<table>
<tr><th>Pin No.</th><th>Symbol</th><th>Description</th></tr>
<tr><td>53/54</td><td>FM/AM STEP</td><td>According to region, input for selecting the frequency band and the steps of FM and AM.<br>Settings are as follows.
<table>
<tr><th>REGION</th><th>STEP</th><th>BAND</th><th>Pin 53</th><th>Pin 54</th></tr>
<tr><td>USA/CANADA</td><td>100 kHz</td><td>FM</td><td>H</td><td>H</td></tr>
<tr><td></td><td>10 kHz</td><td>AM</td><td></td><td></td></tr>
<tr><td>EUROPE</td><td>50 kHz</td><td>FM</td><td>H</td><td>L</td></tr>
<tr><td></td><td>9 kHz</td><td>AM</td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>55</td><td>FR-752RDS /FR-732RDS ID</td><td>Input for selecting FR752RDS or FR732RDS mode.<br>According to each mode, data input is as follows.
<table>
<tr><th>MODE</th><th>INPUT</th></tr>
<tr><td>FR752RDS</td><td>L</td></tr>
<tr><td>FR732RDS</td><td>H</td></tr>
</table>
</td></tr>
<tr><td>56</td><td>TUNED</td><td>Input for detecting station during tuning.<br>If "L" is inputted during turning, turning stops at that frequency.</td></tr>
<tr><td>57</td><td>STEREO</td><td>Input for lighting the STEREO indicator.(At "L", it is active)</td></tr>
<tr><td>58</td><td>RDS ON/OFF</td><td>Input for RDS on or off.(RDS on: "L", RDS off: "H")</td></tr>
<tr><td>59~70</td><td>$S_0$~$S_{11}$</td><td>Segment signal output for FIP.</td></tr>
<tr><td>71</td><td>Vload</td><td>-27V power supply for FIP.</td></tr>
<tr><td>72~75</td><td>$S_{12}$~$S_{15}$</td><td>Segment signal output for FIP.</td></tr>
<tr><td>76~80</td><td>$G_1$~$G_5$</td><td>Grid signal output for FIP.</td></tr>
</table>

# EXPLODED VIEW DIAGRAM


PCB6 (POWER SUPPLY)
PCB9 (SPEAKER)
PCB1 (TUNER)
PCB5 (MAIN)
PCB3 (POWER SW)
PCB7 (HEADPHONE)
PCB8 (SPEAKER SEL.)
PCB2 (FRONT)
PCB4 (VCR2)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21-1
21-2
22-1
22-2
23
24-1
24-2
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
N1

## MAIN BOARD

| | | |
|---|---|---|
| R357L | 4822 117 11964 | Cement Rst 0.27Ω 5W |
| R357R | 4822 117 11964 | Cement Rst 0.27Ω 5W |
| R358L | 4822 117 11964 | Cement Rst 0.27Ω 5W |
| R358R | 4822 117 11964 | Cement Rst 0.27Ω 5W |
| R451 | 4822 117 11964 | Cement Rst 0.27Ω 5W |
| R452 | 4822 117 11964 | Cement Rst 0.27Ω 5W |
| R476 | 4822 117 11964 | Cement Rst 0.27Ω 5W |
| R477 | 4822 117 11964 | Cement Rst 0.27Ω 5W |

| | | |
|---|---|---|
| L301L | 4822 157 71892 | Coil Ind 0.5μH |
| L301R | 4822 157 71892 | Coil Ind 0.5μH |
| L302 | 4822 157 71892 | Coil Ind 0.5μH |
| L303 | 4822 157 71892 | Coil Ind 0.5μH |
| X301 | 4822 242 81969 | CSA2.00MG-TF01 |

| | | |
|---|---|---|
| D301 | 4822 130 30621 | Diode 1N4148 |
| D302 | 4822 130 70048 | Zener UZ9.1BSC |
| D303 | 4822 130 30621 | Diode 1N4148 |
| D304 | 4822 130 30621 | Diode 1N4148 |
| D305L | 4822 130 70048 | Zener UZ27.0BSC |
| D305R | 4822 130 70048 | Zener UZ27.0BSC |
| D306L | 4822 130 30621 | Diode 1N4148 |
| D306R | 4822 130 30621 | Diode 1N4148 |
| D307L | 4822 130 30621 | Diode 1N4148 |
| D307R | 4822 130 30621 | Diode 1N4148 |
| D308L | 4822 130 30621 | Diode 1N4148 |
| D308R | 4822 130 30621 | Diode 1N4148 |
| D309 | 4822 130 70044 | Zener UZ5.1BSB |
| D310 | 4822 130 30621 | Diode 1N4148 |
| D311 | 4822 130 30621 | Diode 1N4148 |
| D312 | 4822 130 30621 | Diode 1N4148 |
| D313 | 4822 130 30621 | Diode 1N4148 |
| D314 | 4822 130 30621 | Diode 1N4148 |
| D315 | 4822 130 30621 | Diode 1N4148 |
| D316 | 4822 130 30621 | Diode 1N4148 |
| D317 | 4822 130 30621 | Diode 1N4148 |
| D318 | 4822 130 30621 | Diode 1N4148 |
| D319 | 4822 130 33765 | Rectifier PX6A03 |
| D320 | 4822 130 33765 | Rectifier PX6A03 |
| D321 | 4822 130 33765 | Rectifier PX6A03 |

| | | |
|---|---|---|
| D322 | 4822 130 33765 | Rectifier PX6A03 |
| D502 | 4822 130 30621 | Diode 1N4148 |
| D503 | 4822 130 30621 | Diode 1N4148 |

| | | |
|---|---|---|
| IC301 | 4822 209 72748 | IC LC7821 |
| IC302 | 4822 209 91029 | IC KIA4559P |
| IC303 | 4822 209 32995 | IC TDA7313 |
| IC304 | 4822 209 91029 | IC KIA4559P |
| IC305 | 4822 209 14929 | IC NJM2177AFB3 |
| IC306 | 4822 209 90023 | IC NJU9701D |
| IC307 | 4822 209 91029 | IC KIA4559P |
| IC308 | 4822 209 91026 | IC TC9176 |
| IC309 | 4822 209 91029 | IC KIA4559P |
| Q301 | 4822 130 41947 | Trans KTC3198Y |
| Q302 | 4822 130 41947 | Trans KTC3198Y |
| Q303L | 4822 130 63904 | Trans KTD1302 |
| Q303R | 4822 130 63904 | Trans KTD1302 |
| Q304L | 4822 130 63904 | Trans KTD1302 |
| Q304R | 4822 130 63904 | Trans KTD1302 |
| Q306 | 4822 130 63907 | Trans DTA114YS |
| Q307 | 4822 130 63904 | Trans KTD1302 |
| Q308 | 4822 130 63904 | Trans KTD1302 |
| Q309 | 4822 130 63907 | Trans DTA114YS |
| Q310 | 4822 130 63907 | Trans DTA114YS |
| Q311 | 4822 130 63906 | Trans DTC114YS |
| Q312 | 4822 130 63906 | Trans DTC114YS |
| Q313L | 4822 130 41312 | Trans KTC3200 |
| Q313R | 4822 130 41312 | Trans KTC3200 |
| Q314L | 4822 130 41312 | Trans KTC3200 |
| Q314R | 4822 130 41312 | Trans KTC3200 |
| Q315L | 4822 130 42394 | Trans KTC3198Y |
| Q315R | 4822 130 42394 | Trans KTC3198Y |
| Q316L | 4822 130 42394 | Trans KTC3198Y |
| Q316R | 4822 130 42394 | Trans KTC3198Y |
| Q317L | 4822 130 63903 | Trans KTA1024 |
| Q317R | 4822 130 63903 | Trans KTA1024 |
| Q318L | 4822 130 63905 | Trans KTC3206 |
| Q318R | 4822 130 63905 | Trans KTC3206 |
| Q319L | 4822 130 63899 | Trans 2SC4137 |

## MAIN BOARD

| | | |
|---|---|---|
| Q319R | 4822 130 63899 | Trans 2SC4137 |
| Q320L | 4822 130 63898 | Trans KSC2690A-Y |
| Q320R | 4822 130 63898 | Trans KSC2690A-Y |
| Q321L | 4822 130 63897 | Trans KSA1220A-Y |
| Q321R | 4822 130 63897 | Trans KSA1220A-Y |
| Q322L | 4822 130 63895 | Trans 2SC3854 |
| Q322R | 4822 130 63895 | Trans 2SC3854 |
| Q323L | 4822 130 63894 | Trans 2SA1490 |
| Q323R | 4822 130 63894 | Trans 2SA1490 |
| Q324L | 4822 130 41947 | Trans KTC3198Y |
| Q324R | 4822 130 41947 | Trans KTC3198Y |
| Q325 | 4822 130 41312 | Trans KTC3200 |
| Q326 | 4822 130 41312 | Trans KTC3200 |
| Q327 | 4822 130 42394 | Trans KTC3198Y |
| Q328 | 4822 130 42394 | Trans KTC3198Y |
| Q329 | 4822 130 63903 | Trans KTA1024 |
| Q330 | 4822 130 63905 | Trans KTC3206 |
| Q331 | 4822 130 63899 | Trans 2SC4137 |
| Q332 | 4822 130 63898 | Trans KSC2690A-Y |
| Q333 | 4822 130 63897 | Trans KSA1220A-Y |
| Q334 | 4822 130 63895 | Trans 2SC3854 |
| Q335 | 4822 130 63894 | Trans 2SA1490 |
| Q336 | 4822 130 41947 | Trans KTC3198Y |
| Q337 | 4822 130 41312 | Trans KTC3200 |
| Q338 | 4822 130 41312 | Trans KTC3200 |
| Q339 | 4822 130 42394 | Trans KTC3198Y |
| Q340 | 4822 130 42394 | Trans KTC3198Y |
| Q341 | 4822 130 63903 | Trans KTA1024 |
| Q342 | 4822 130 63905 | Trans KTC3206 |
| Q343 | 4822 130 63899 | Trans 2SC4137 |
| Q344 | 4822 130 63898 | Trans KSC2690A-Y |
| Q345 | 4822 130 63897 | Trans KSA1220A-Y |
| Q346 | 4822 130 63895 | Trans 2SC3854 |
| Q347 | 4822 130 63894 | Trans 2SA1490 |
| Q348 | 4822 130 41947 | Trans KTC3198Y |
| Q349 | 4822 130 41726 | Trans KTA1015 |
| Q350 | 4822 130 41947 | Trans KTC3198Y |
| Q351 | 4822 130 41947 | Trans KTC3198Y |
| Q504 | 4822 130 63907 | Trans DTA114YS |
| Q505 | 4822 130 63906 | Trans DTC114YS |

| | | |
|---|---|---|
| Q505L | 4822 130 63904 | Trans KTD1302 |
| Q505R | 4822 130 63904 | Trans KTD1302 |

**- MISCELLANEOUS -**

| | | |
|---|---|---|
| JACK2 | 4822 265 10765 | Terminal Speaker 6P |
| JACK5 | 4822 267 41251 | Jack RCA 6P |
| JACK6 | 4822 267 41252 | Jack RCA 6P |

Note : Only those parts mentioned in the list are normal service parts.

## TUNER BOARD

| | | |
|---|---|---|
| VR101 | 4822 117 12559 | Semi-fixed Res 10K |
| VR102 | 4822 117 12561 | Semi-fixed Res 100K |
| VR103 | 4822 117 12562 | Semi-fixed Res 500K |
| VR104 | 4822 117 12563 | Semi-fixed Res 2K |
| VR105 | 4822 117 12564 | Semi-fixed Res 50K |

| | | |
|---|---|---|
| TC101 | 4822 125 60228 | Trimmer 20pF |
| TC102 | 4822 125 60227 | Trimmer 10pF |

| | | |
|---|---|---|
| CF101 | 4822 242 82235 | SFE10.7MS3GH-ATF21 |
| CF102 | 4822 242 82235 | SFE10.7MS3GH-ATF21 |
| CF103 | 4822 157 11047 | Filter CFM2-450BL |
| CF104 | 4822 242 82242 | Filter BFU450C4N |
| FE101 | 4822 210 10676 | FM Tuner FE407-G60 |
| L101 | 4822 157 71881 | AM-Ant Coil |
| L102 | 4822 157 71888 | AM-Osc Coil |
| L103 | 4822 157 11048 | FM-Det-A Coil |
| L104 | 4822 157 71895 | FM-Det-B Coil |
| L105 | 4822 157 71893 | Inductor 20.8mH |
| L106 | 4822 157 71896 | AM IFT Coil |
| L107L | 4822 157 11049 | Filter MPX |
| L107R | 4822 157 11049 | Filter MPX |
| X101 | 4822 242 82238 | Crystal 7.2MHz |
| X102 | 4822 242 10608 | Crystal 4.332MHz |
| X103 | 4822 242 10607 | Resonator 4.00MGW |

| | | |
|---|---|---|
| D101 | 4822 130 30621 | Diode 1N4148 |
| D102 | 4822 130 30621 | Diode 1N4148 |
| D103 | 4822 130 30621 | Diode 1N4148 |
| D104 | 4822 130 30621 | Diode 1N4148 |
| D106 | 4822 130 70044 | Zener UZ5.1BSB |
| D107 | 4822 130 70044 | Zener UZ5.1BSB |
| D108 | 4822 130 30621 | Diode 1N4148 |
| D109 | 4822 130 30621 | Diode 1N4148 |
| D110 | 4822 130 70044 | Zener UZ5.1BSB |
| D111 | 4822 130 30621 | Diode 1N4148 |

| | | |
|---|---|---|
| D112 | 4822 130 30621 | Diode 1N4148 |
| VD101 | 4822 130 81197 | VC Diode KV1236Z |
| VD102 | 4822 130 81197 | VC Diode KV1236Z |

| | | |
|---|---|---|
| IC101 | 4822 209 91027 | IC LA1266G |
| IC102 | 4822 209 91051 | IC HA12016 |
| IC103 | 4822 209 30152 | IC LM7001 |
| IC104 | 4822 209 91025 | IC GD4066B |
| IC105 | 4822 209 73726 | IC LA1235 |
| IC106 | 4822 209 15022 | IC LC7073 |
| IC107 | 4822 209 33842 | IC TDA7330B |
| Q101 | 4822 130 63896 | Trans KTC3194Y |
| Q102 | 4822 130 41312 | Trans KTC3200 |
| Q103 | 4822 130 63908 | FET 2SK168DTZ |
| Q104 | 4822 130 63907 | Trans DTA114YS |
| Q105 | 4822 130 63907 | Trans DTA114YS |
| Q106 | 4822 130 63907 | Trans DTA114YS |
| Q107 | 4822 130 41947 | Trans KTC3198Y |
| Q108 | 4822 130 63907 | Trans DTA114YS |
| Q109L | 4822 130 63904 | Trans KTD1302 |
| Q109R | 4822 130 63904 | Trans KTD1302 |
| Q110 | 4822 130 41726 | Trans KTA1266Y |
| Q111 | 4822 130 41947 | Trans KTC3198Y |
| Q112 | 4822 130 41726 | Trans KTA1266Y |
| Q113 | 4822 130 43546 | FET 2SK117Y |
| Q114 | 4822 130 41947 | Trans KTC3198Y |

**- MISCELLANEOUS -**

| | | |
|---|---|---|
| J101 | 4822 265 10766 | Jack RCA 2P |
| J102 | 4822 267 41253 | Jack RCA 3P |
| J103 | 4822 267 31993 | Jack Remote 2P |
| ANT101 | 4822 290 81738 | Terminal Antenna |

Note : Only those parts mentioned in the list are normal service parts.

## FRONT BOARD

| | | |
|---|---|---|
| C204 | 4822 124 80923 | Electrolytic Cap 0.047F |

| | | |
|---|---|---|
| X200 | 4822 242 73769 | CST4.19MGW-TF01 |

| | | |
|---|---|---|
| D200 | 4822 130 30621 | Diode 1N4148 |
| D201 | 4822 130 30621 | Diode 1N4148 |
| D202 | 4822 130 30621 | Diode 1N4148 |
| D203 | 4822 130 30621 | Diode 1N4148 |
| D204 | 4822 130 30621 | Diode 1N4148 |
| D205 | 4822 130 30621 | Diode 1N4148 |
| D207 | 4822 130 70048 | Zener UZ27.0BSC |
| D208 | 4822 130 83742 | Zener UZ6.2BSB |
| D209 | 4822 130 31878 | Diode 1N4003 |
| D210 | 4822 130 30621 | LED SLR-54URCF03 |
| D211 | 4822 130 30621 | Diode 1N4148 |
| D212 | 4822 130 30621 | Diode 1N4148 |
| D213 | 4822 130 30621 | Diode 1N4148 |
| D214 | 4822 130 30621 | Diode 1N4148 |
| D215 | 4822 130 70045 | Zener UZ5.6BSB |
| D216 | 4822 130 70043 | Zener UZ4.3BSB |
| D217 | 4822 130 30621 | Diode 1N4148 |
| D218 | 4822 130 30621 | Diode 1N4148 |
| D219 | 4822 130 70051 | LED SLR-54URCF03 |
| D220 | 4822 130 30621 | Diode 1N4148 |

| | | |
|---|---|---|
| IC200 | 4822 209 15014 | UPD78044AGF-210-3B9 |
| IC201 | 4822 209 15015 | IC MC14094 |
| Q200 | 4822 130 41947 | Trans KTC3198Y |
| Q201 | 4822 130 63906 | Trans DTC114YS |
| Q202 | 4822 130 63906 | Trans DTC114YS |
| Q203 | 4822 130 63906 | Trans DTC114YS |
| Q204 | 4822 130 63906 | Trans DTC114YS |
| Q205 | 4822 130 63906 | Trans DTC114YS |
| Q206 | 4822 130 63906 | Trans DTC114YS |
| Q207 | 4822 130 63906 | Trans DTC114YS |

| | | |
|---|---|---|
| Q208 | 4822 130 63907 | Trans DTA114YS |
| Q209 | 4822 130 63907 | Trans DTA114YS |
| Q210 | 4822 130 63907 | Trans DTA114YS |
| Q211 | 4822 130 63906 | Trans DTC114YS |
| Q212 | 4822 130 63907 | Trans DTA114YS |
| Q213 | 4822 130 63906 | Trans DTC114YS |
| Q214 | 4822 130 63906 | Trans DTC114YS |

**- MISCELLANEOUS -**

| | | |
|---|---|---|
| FL201 | 4822 135 00076 | FL Display CM1361C |
| RMC201 | 4822 130 91529 | Remote Sen KRN-34LI |
| SW3 | 4822 276 13661 | Tact Switch |
| SW4 | 4822 276 13661 | Tact Switch |
| SW5 | 4822 276 13661 | Tact Switch |
| SW6 | 4822 276 13661 | Tact Switch |
| SW7 | 4822 276 13661 | Tact Switch |
| SW8 | 4822 276 13661 | Tact Switch |
| SW9 | 4822 276 13661 | Tact Switch |
| SW10 | 4822 276 13661 | Tact Switch |
| SW11 | 4822 276 13661 | Tact Switch |
| SW12 | 4822 276 13661 | Tact Switch |
| SW13 | 4822 276 13661 | Tact Switch |
| SW14 | 4822 276 13661 | Tact Switch |
| SW15 | 4822 276 13661 | Tact Switch |
| SW16 | 4822 276 13661 | Tact Switch |
| SW17 | 4822 276 13661 | Tact Switch |
| SW18 | 4822 276 13661 | Tact Switch |
| SW19 | 4822 276 13661 | Tact Switch |
| SW20 | 4822 276 13661 | Tact Switch |
| SW21 | 4822 276 13661 | Tact Switch |
| SY200 | 4822 277 11645 | Switch Encoder |

Note : Only those parts mentioned in the list are normal service parts.

## POWER BOARD

| | | | |
|---|---|---|---|
| D601 | | 4822 130 31878 | Diode 1N4003 |
| D602 | | 4822 130 31878 | Diode 1N4003 |
| D603 | | 4822 130 31878 | Diode 1N4003 |
| D604 | | 4822 130 31878 | Diode 1N4003 |
| D605 | | 4822 130 31878 | Diode 1N4003 |
| D606 | | 4822 130 31878 | Diode 1N4003 |
| D607 | | 4822 130 31878 | Diode 1N4003 |
| D608 | | 4822 130 31878 | Diode 1N4003 |
| D609 | | 4822 130 31878 | Diode 1N4003 |
| D610 | | 4822 130 31878 | Diode 1N4003 |
| D611 | | 4822 130 31878 | Diode 1N4003 |
| IC601 | | 4822 209 91032 | IC KA7915 |
| IC602 | | 4822 209 91033 | IC KA7815 |
| IC604 | | 4822 209 91031 | IC KA7806 |
| Q601 | | 4822 130 41947 | Trans KTC3198Y |
| **- MISCELLANEOUS -** | | | |
| F601 | ⚠ | 4822 253 50165 | Fuse 5T 1A 250V |
| F602 | ⚠ | 4822 253 50165 | Fuse 5T 1A 250V |
| F603 | ⚠ | 4822 253 50164 | Fuse 5T 250MA 250V |
| F604 | ⚠ | 4822 253 50167 | Fuse 5T 2.5A 250V |
| F605 | ⚠ | 4822 253 50166 | Fuse 5T 2A 250V |
| J701 | | 4822 265 31321 | Jack RCA 3P |
| OUT601 | | 4822 267 31994 | AC Outlet 1P |
| RL601 | ⚠ | 4822 280 80794 | Relay SDT-SS-112DM |
| SPKT901 | | 4822 290 81736 | Terminal Speaker 4P |
| SW1 | | 4822 276 13807 | Power Switch |
| SW2 | | 4822 276 13658 | Push Switch 2P2T |
| SW801 | | 4822 267 31992 | Jack Phone |
| | ⚠ | 4822 146 31505 | Standby Transf 230V |
| | ⚠ | 4822 146 10662 | Power Transf 230V |

Note : Only those parts mentioned in the list are normal service parts.